




**PREVENTION AND TREATMENT
OF TUBERCULOSIS IN THE
ADMINISTRATIVE COUNTY OF LANCASTER.**

**Report of the Central Tuberculosis Officer
of the Lancashire County Council
for the Year 1928.**



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COUNTY TUBERCULOSIS COMMITTEE

(1929).

The Chairman of the County Council :

†H. Wade Deacon, Esq., C.B.E., J.P.

The Vice-Chairman of the County Council :

†J. T. Travis Clegg, Esq., J.P., D.L.

Chairman of Committee :

*†C. J. Trimble, Esq., C.B., C.M.G., L.R.C.S.I., J.P., D.L.

Vice-Chairman :

*E. Boothman, Esq., J.P.

COUNTY ALDERMEN—

J. C. Beckitt, Esq., M.R.C.S.,
L.R.C.P., D.P.H.
A. S. Bury, Esq., J.P.
*W. Hodgson, Esq., J.P.

R. Sephton, Esq., M.R.C.S., J.P.
*H. Winstanley, Esq., L.R.C.P.,
L.R.C.S., J.P.

COUNTY COUNCILLORS—

J. A. Birch, Esq.
G. H. Brown, Esq.
*I. Flack, Esq., L.R.C.P.,
L.R.F.P.S., D.P.H.
F. H. Hollingworth, Esq.
H. F. Jeffery, Esq., M.B.,
Ch.B., J.P.

*A. Kenyon, Esq.
P. F. Mannix, Esq., M.D.,
M.Ch., B.A.O., R.U.I.
*Rev. A. M. Mitchell, M.A.
J. Nuttall, Esq.
C. De Lisle Shortt, Esq.,
L.M., L.S.
E. G. Woolgar, Esq.

* Members of Sanatorium and Hospital Sub-Committee.

† County Aldermen.

MEDICAL AND NURSING STAFF OF THE TUBERCULOSIS DEPARTMENT, 1929.

G. Lissant Cox, M.A., M.D. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.),
Central Tuberculosis Officer.

DISPENSARY AREAS.

Area No. 1. (Population 260,601).

(Lancaster, Morecambe and Heysham, Lytham St. Annes, Garstang
Rural (part), Preston Rural, Chorley, and Horwich districts).

Consultant Tuberculosis Officer—Alan D. Brunwin, M.A., M.D., B.Ch.
(Camb.), D.P.H. (Aberdeen).

Assistant Tuberculosis Officer—George H. Leigh, M.D., Ch.B.,
D.P.H. (Manch.).

Area No. 2. (Population 354,883).

(Accrington, Nelson, Bacup, Clitheroe, Darwen, and Rawtenstall
districts).

Consultant Tuberculosis Officer—Burgess MacPhee, M.B., Ch.B.
(Glas.), D.P.H. (Camb.).

Assistant Tuberculosis Officers—Scott C. Adam, M.B., Ch.B.
(Glas.), D.P.H. (Lond.), and F. C. S. Bradbury, M.B., B.Ch.,
B.A.O. (Belfast).

Area No. 3. (Population 373,152).

(Ashton-under-Lyne, Mossley, Bury Rural, Chadderton, Crompton,
Littleborough, and Middleton districts).

Consultant Tuberculosis Officer—George Fletcher, M.A., M.D., (Glas.),
M.R.C.P. (Lond.), D.P.H. (Camb.)

Assistant Tuberculosis Officers—Cecil Berry, L.R.C.P., L.R.C.S.
(Edin.), L.F.P.S. (Glas.), D.P.H. (R.C.S.I.), and John Cathcart,
M.B., Ch.B. (Edin.), D.P.H. (R.C.P.S.I.).

Area No. 4. (Population 343,716).

(Leigh, Eccles, Farnworth, Stretford, and Swinton districts).

Consultant Tuberculosis Officer—George Jessel, M.A., M.D. (Oxon.),
D.P.H. (Manch.).

Assistant Tuberculosis Officers—Alexander B. Jamieson, M.B.,
Ch.B. (Edin.), and Henry J. Villiers, L.R.C.P.I., L.R.C.S.I.

Area No. 5. (Population 378,246).

(Seaforth, West Lancashire Rural, Hindley, Wigan Rural, Newton-in-
Makerfield, Warrington Rural, Whiston Rural, and Widnes districts).

Consultant Tuberculosis Officer—Charles W. Laird, B.A., M.D. (Dublin),
D.P.H. (Liverpool).

Assistant Tuberculosis Officers—Charles H. Lilley, M.B., Ch.B.
(St. Andrews), D.P.H. (Lond.), and G. Barker Charnock, L.R.C.S.,
L.R.C.P. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (Liverpool).

Furness Sub-Area. (Population 38,433).

(Dalton-in-Furness, Grange-over-Sands, Ulverston, and Ulverston Rural districts).

Consultant Tuberculosis Officer—E. H. Allon Pask, M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Medical Superintendent of the High Carley Sanatorium.

Fylde Sub-Area. (Population 61,969).

(Fleetwood, Fylde Rural, Garstang Rural (part), Kirkham, Preesall, and Thornton districts).

Consultant Tuberculosis Officer—George Leggat, M.B., Ch.B., D.P.H. (Aberdeen), Medical Superintendent of the Elswick Sanatorium.

SANATORIA AND HOSPITALS.

High Carley Sanatorium and Oubas House Children's Sanatorium.

E. H. Allon Pask, M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Medical Superintendent (also Consultant Tuberculosis Officer for Furness Sub-Area).

James L. Armour, M.B., Ch.B. (Liverpool), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Assistant Medical Superintendent.

Elswick Sanatorium.

George Leggat, M.B., Ch.B., D.P.H. (Aberdeen), Medical Superintendent (also Consultant Tuberculosis Officer for Fylde Sub-Area).

Chadderton Pulmonary Hospital.

James Wood, M.D., Ch.B., D.P.H., R.C.P.S.I., Visiting Medical Superintendent.

Peel Hall Pulmonary Hospital.

George Jessel, M.A., M.D. (Oxon.), D.P.H. (Manch.), Visiting Medical Superintendent (also Consultant Tuberculosis Officer for Dispensary Area No. 4).

Rufford Pulmonary Hospital.

Charles W. Laird, B.A., M.D. (Dublin), D.P.H. (Liverpool), Visiting Medical Superintendent (also Consultant Tuberculosis Officer for Dispensary Area No. 5).

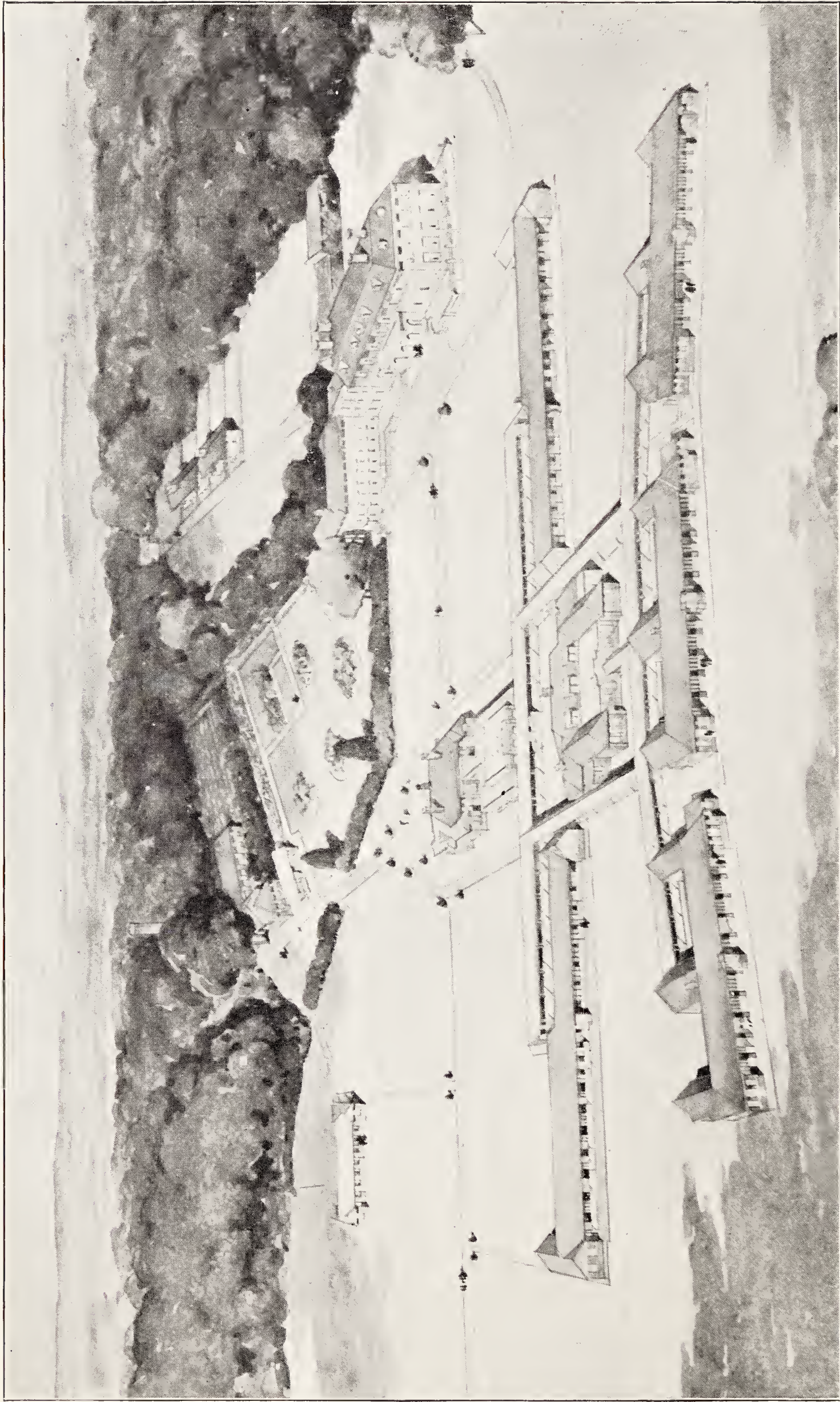
Withnell Pulmonary Hospital.

Burgess MacPhee, M.B., Ch.B. (Glas.), D.P.H. (Camb.), Visiting Medical Superintendent (also Consultant Tuberculosis Officer for Dispensary Area No. 2).

TUBERCULOSIS HEALTH VISITORS.

Dispensary Area.	Name of Nurse.		Commenced Duties.
No. 1	L. Walker*	...	6th September, 1915.
	J. Skelcher	...	26th April, 1916.
	F. D. Abbott*	...	1st July, 1919.
	G. M. Hunter	...	4th June, 1928.
No. 2	R. Lambert*	...	12th June, 1914.
	A. Munro* ...	...	5th July, 1915.
	M. Duggan*	...	30th August, 1915.
	L. F. Norwood	...	5th January, 1920.
	E. Watterson	...	19th July, 1920.
	H. M. Alcock*	...	20th February, 1925.
No. 3	M. A. Potter	...	1st June, 1914.
	H. Dewsnap*	...	7th December, 1914.
	I. F. Macdonald*	...	2nd October, 1918.
	C. Guilfoyl*	...	1st July, 1919.
	A. Flynn* ...	...	1st December, 1919.
	W. Swift ...	...	4th April, 1927.
	M. Sherwen	...	3rd January, 1928.
No. 4	M. B. Jones	...	1st December, 1919.
	H. M. Shakespeare*	...	1st March, 1921.
	F. G. Smith	...	1st November, 1921.
	A. Dickinson	...	5th September, 1923.
	D. Grime* ...	...	6th September, 1926.
	A. Worsley*	...	23rd March, 1927.
	M. W. Stringman	...	5th December, 1927.
No. 5	E. Walch ...	...	15th June, 1914.
	I. Laing* ...	...	20th May, 1918.
	E. Walters*	...	1st October, 1918.
	M. J. Wilson*	...	1st July, 1919.
	A. Duncan ...	...	1st April, 1924.
	L. Farquhar*	...	2nd July, 1928.
	M. J. Evans	...	To commence 1st November, 1929.
Furness Sub-Area	A. E. Duston	...	1st February, 1921.
Fylde Sub-Area ...	A. Tweedy*	...	17th January, 1917.

* Possesses a health visitor's or sanitary certificate.



WRIGHTINGTON HOSPITAL, PARBOLD, LANCs.

Hospital for 226 patients (Non-pulmonary tuberculosis: adults 60, children 146; combined pulmonary and non-pulmonary 20).
Building work commenced 13th August, 1929. (See page 104.)

[Sketch prepared by County Architect.

REPORT

OF THE

CENTRAL TUBERCULOSIS OFFICER

FOR THE YEAR 1928.

*To the Chairman and Members of the
Lancashire County Council.*

LADIES AND GENTLEMEN,

I have the honour to submit the fifteenth annual report on the work of the tuberculosis department, and in this introductory portion will give briefly some of the principal features of the work in 1928.

Reduced tuberculosis incidence and mortality.

“The decline in the incidence and mortality in Lancashire is particularly striking. Notifications have fallen from 1·47 per 1,000 of the population in 1918 to 0·91 in 1928, and the mortality of 0·58 per 1,000 for pulmonary tuberculosis is the lowest on record for the sixth year in succession.” This statement is quoted from the annual report for 1928 of Sir George Newman, the Chief Medical Officer of the Ministry of Health, and epitomises the tuberculosis vital statistics for the Administrative County (population 1,811,000).

The County tuberculosis death-rate is still less than that for England and Wales, as it has always been.

It may be of interest to give the death-rate per 1,000 of the population from all forms of tuberculosis in other administrative counties with a population of a million or more:—Durham, 1·05; Essex, 0·74; Kent, 0·86; Middlesex, 0·75; West Riding of Yorkshire, 0·83. The Lancashire rate is 0·74.

Wrightington Hospital, near Parbold.

On the 13th August, 1929, the contractors commenced work on the construction of new pavilions and other blocks for Wrightington Hospital which will accommodate 226 patients suffering from tuberculosis (non-pulmonary, 60 adults and 146 children; combined pulmonary and non-pulmonary, 20). When completed, the hospital will greatly strengthen the County scheme for the treatment of cases of non-pulmonary tuberculosis. A “bird’s-eye view” of the new hospital appears opposite, and there is a further reference on page 104.

Artificial light treatment.

Up to October, 1929, twelve of the existing tuberculosis dispensaries had been equipped for giving artificial light treatment, and facilities for this form of treatment are now within convenient access of all tuberculous patients requiring it.

The work of the light centres in 1928 has still further confirmed the very good results of treatment obtained for certain forms of non-pulmonary tuberculosis, especially in two groups of cases, namely, those suffering from (a) lupus, and (b) adenitis with abscess-formation and skin involvement. Artificial light treatment has not been found suitable for pulmonary cases. A series of photographs illustrative of cases which have benefited by light treatment is given between pages 34 and 35 in the chapter devoted to artificial light.

Not only, however, have the results of treatment at the tuberculosis dispensary centres been satisfactory, but there are additional considerations, e.g., patients do not have to leave home; three-fourths of them have been able to continue their normal occupations; and the cost of treatment is much less than institutional treatment.

Research work. New methods of treatment.

The medical staff have continued to undertake research work in many directions. They have also tried various new methods of treatment from time to time recommended as "cures" for tuberculosis, and the results are dealt with in Chapter II on page 25.

It must not be overlooked that, by the "ordinary" methods of treatment of tuberculosis, up to the end of 1928, there have been in this County 4,533 patients (2,155 pulmonary and 2,378 non-pulmonary) diagnosed and notified as suffering from tuberculosis written off the register of tuberculous cases as "cured."

Skiagrams illustrating the treatment of patients by artificial pneumothorax will be found in the reports of the medical superintendents of the Peel Hall and Rufford Pulmonary Hospitals (see opposite pages 98 and 102).

Lipiodol has been used at several sanatoria and hospitals as an aid to diagnosis, and skiagrams demonstrating its action are given in the reports of the medical superintendents of High Carley Sanatorium and Peel Hall Pulmonary Hospital (see opposite pages 86 and 98).

Silicosis.

On the invitation of the Silicosis (Medical Arrangements) Committee, appointed by the Home Secretary at the end of 1928, Dr. G. Fletcher, one of the consultant tuberculosis officers, and myself gave evidence in April, 1929, bearing on the terms of reference to the Committee, namely: "as to the medical arrangements which could be made for the diagnosis of silicosis (including silicosis accompanied by tuberculosis) in cases of claims arising under the Workmen's Compensation Act, and for carrying out any periodic or other medical examinations of workers which may be prescribed for any industry or process involving risk of silicosis under the Factory and Workshop Act, 1901, or any other enactment." We gave particulars of the occupational population of the Administrative County of Lancaster and the occupational mortality, and explained the arrangements for diagnosis (including X-ray facilities) under the County tuberculosis scheme. We were also able to furnish statistics obtained from the tuberculosis medical staff showing the incidence of silicosis—alone, and accompanied by tuberculosis—in the County.

Visits of foreign medical officers, deputations, and members of British Medical Association.

I beg to report that the department has been honoured by the following visitors to study the work of the County tuberculosis scheme:—

Dr. J. D. Munsiff, Director of Public Health to the Bombay Presidency. Visited central office, Ashton-under-Lyne Chief Dispensary, and Peel Hall Pulmonary Hospital in October, 1928.

Dr. G. A. Messih, a Medical Officer of the Egyptian Government. Visited central office, Ashton-under-Lyne Chief Dispensary, and Withnell Pulmonary Hospital in December, 1928.

Durham County Council.—Deputation from Public Health Committee visited in February, 1929, Ashton-under-Lyne, Eccles, and St. Helens dispensaries, and Peel Hall Pulmonary Hospital in connection with artificial light treatment and X-ray work.

West Riding County Council.—Deputation from Public Health Committee visited Ashton-under-Lyne Chief Dispensary in connection with X-ray work in January, 1929.

British Medical Association, Annual Meeting at Manchester.—Members from Great Britain and abroad visited (as part of official programme) the Eccles Dispensary, the Ashton-under-Lyne Dispensary, and the Peel Hall Pulmonary Hospital in July, 1929.

*Co-operation with sanitary authorities, medical practitioners,
and health officials.*

The results of the tuberculosis scheme would be very different if the relations with the medical practitioners in the County, together with the 119 sanitary authorities and their medical officers and sanitary inspectors, had not been of the most cordial and satisfactory character. I take this opportunity of acknowledging such co-operation from these sources.

The dispensary unit.

The dispensary organisation with the staff of consultant tuberculosis officers, assistant tuberculosis officers and nurses, has continued to fulfil its indispensable part of the tuberculosis scheme. Here most valuable work is done in regard to prevention of the spread of infection and diagnosis. The relationship between the medical staff and the family doctors is most cordial. Last year 86 per cent. of new cases were referred to the dispensary for an opinion prior to notification.

Results of treatment of non-pulmonary cases.

There came on the dispensary register during the years 1912 to 1923, 1,586 adults and 1,614 children. The different types of disease were distributed as follow :—

Type of disease.					Adults.	Children.
Bones and Joints	...	...	...	...	635	553
Abdominal	...	...	...	...	136	205
Peripheral Glands	...	...	...	...	575	740
Skin	...	...	...	...	163	106
Other Organs	...	...	...	...	77	10
TOTAL	...	...	...	...	1,586	1,614

At the end of 1928, 54·7 per cent. of the adults had been cured and 63·8 per cent. of the children. These results are encouraging. The matter is dealt with more fully on page 110.

Care work.

There are now nineteen voluntary care committees at work in the County, covering a population of nearly 850,000. The Council's scheme to allow the care work for the remainder of the County to be done through the dispensary staff, pending the formation of further voluntary committees, has proved most valuable in assisting necessitous patients.

Cost of the County scheme.

The cost of the tuberculosis scheme of the County Council for 1929–30 has, after allowing for Government grants, required a County Rate of 1·73 pence (or 1¾d) in the £.

Death of Dr. J. Logan Stewart.

It is with great regret that I have to record the death on the 20th February, 1929, from pneumonia of Dr. J. Logan Stewart, M.A., M.B., Ch.B., D.P.H. Dr. Stewart entered the service of the Lancashire County Council as a medical inspector of schools in 1909, and in July, 1913, he was appointed consultant tuberculosis officer for Dispensary Area 3, constituting the south-east portion of the County.

Dr. Stewart's exceptional abilities and pioneer work in radiography and artificial light treatment at the Ashton-under-Lyne Dispensary contributed in no small degree to the efficiency of the medical work under the Lancashire scheme for the prevention and treatment of tuberculosis. His very sure judgment and most unselfish nature made him loved and respected by all his colleagues, patients and the many doctors who consulted him.

Dr. Stewart's chief assistant tuberculosis officer, Dr. George Fletcher, M.A., M.D., M.R.C.P. (Lond.), D.P.H., succeeded to the vacancy on 1st March, 1929.

I have again to thank my medical colleagues and the nursing and clerical staff for continued help. I have had very valuable help from my principal clerk, Mr. H. F. Hughes, especially in preparing this report, and have, in addition, to thank the Public Health Department for furnishing certain statistics on notifications and deaths.

I am,

Your obedient Servant,

G. LISSANT COX,

Central Tuberculosis Officer.

County Offices, Preston.

11th October, 1929.

I.—THE REDUCTION IN THE TUBERCULOSIS MORTALITY AND INCIDENCE.

The following is the summary of the principal features regarding tuberculosis mortality and incidence in 1928 in the Administrative County (containing an estimated population of 1,811,000 in 119 urban and rural sanitary districts):—

1. The death-rate (0·58 per 1,000 of population) from pulmonary tuberculosis (consumption) in the County is for the sixth consecutive year the lowest on record, and is below the pulmonary rate for England and Wales (see chart opposite).

2. The death-rate from non-pulmonary tuberculosis (namely 0·15 per 1,000) is also the lowest ever recorded in the County; with the exception of three occasions, the rate has always been less than that for England and Wales (see chart opposite).

3. The saving in human life by the reduction of the County death-rate from tuberculosis (all forms) is very considerable; for example, if the death-rate for 1914 had persisted in 1928, then there would have been 2,155 deaths instead of the actual number of 1,353.

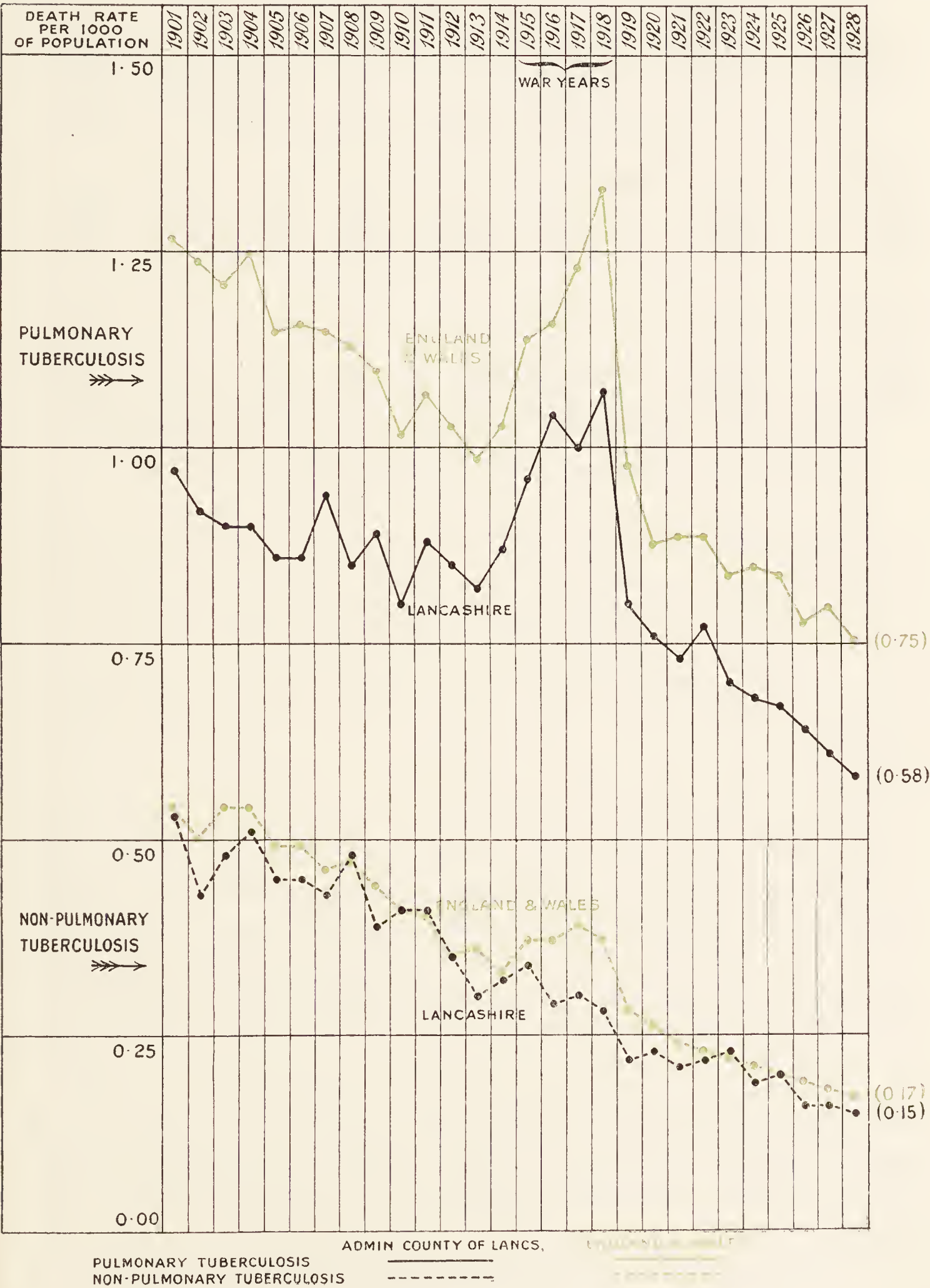
4. Both pulmonary and non-pulmonary tuberculosis are more prevalent among males than females. Allowing for the difference in the population of the sexes, for every 100 deaths of males there are only 74 deaths of females. The ratio for England and Wales is 100 male deaths to 75 female deaths.

5. Pulmonary tuberculosis was again most fatal for females between ages 15 and 25, after which a progressive decline takes place until old age. For males, the experience of past years has changed, and for the first time the figures for 1928 showed a remarkable evenness of mortality in the four age-groups 15–25–35–45–55. Non-pulmonary tuberculosis predominates in early childhood (ages 0 to 5).

6. The number of new cases of tuberculosis (2,616) notified in 1928 is the lowest on record; compared with 1914 there has been a reduction of no less than 1,344 cases (see Table 3 on page 21).

The chart below shows the fall experienced in the death-rates from pulmonary and non-pulmonary tuberculosis in the County during the past ten years, and the favourable comparison with England and Wales :—

TUBERCULOSIS DEATH-RATES, 1901 TO 1928.



DEATHS ANALYSED ACCORDING TO SEX AND AGE.

(a) *Pulmonary Tuberculosis.*

The table below shows in what age-groups the improvement in the mortality has taken place :—

TABLE 1.

Average for three years, or year.	Estimated sex population of Admin. County.	Pulmonary deaths in various age-groups.*								Death rate per 1,000 of sex popn.
		0 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over	Total Deaths	
<i>Males—</i>										
1921–23...	836,754	23	123	136	160	153	89	29	713	0·85
1924–26...	848,134	23	114	126	142	146	76	22	649	0·76
1927 ...	855,117	15	101	114	138	125	70	25	588	0·68
1928 ...	860,199	9	117	116	112	110	73	38	575	0·66
<i>Females—</i>										
1921–23...	924,887	38	170	154	166	67	38	19	591	0·63
1924–26...	937,466	29	174	131	94	64	36	15	543	0·57
1927 ...	945,183	28	152	145	85	46	45	16	517	0·54
1928 ...	950,801	26	157	132	70	48	39	19	491	0·51

* These are the actual numbers of deaths ; it has not been possible to calculate the death-rates in each age-group owing to the difficulty in estimating the population year by year in those groups.

The preceding table shows that the improvement in the pulmonary death-rate is due to the decrease in the deaths of the males in age-groups 35–45 and 45–55—two groups which, in the past, have suffered a greater mortality than the other age-groups—followed to a minor degree by age-group 0–15. Among the females the reduction has occurred in age-groups 35–45 and 25–35. Both male and female deaths have shared in the reduction, the females to a slightly greater extent.

Adding the male and female deaths together, the age-group experiencing the heaviest mortality is now 15–25 years. This marks a change from the results of the researches of Brownlee¹ who, reporting on the epidemiology of pulmonary tuberculosis in Great Britain, showed that for the period 1881–1890 Lancashire was one of the two northern counties which were unique in having the greatest prevalence among the “middle-age” group, namely ages 35–55. I dealt rather fully with this matter in my annual report for 1923, and drew attention to the shifting of the mortality in the direction of the “young adult” group which may be taken as ages 15–25. This movement, however, has been occasioned not by any increase in the deaths among “young adults” (whose mortality, as a matter of fact, has slightly declined) but by definite and distinct reduction in the deaths between ages 25 and 55.

¹ “An Investigation into the Epidemiology of Phthisis in Great Britain and Ireland,” Medical Research Council Special Report, No. 46.

(b) Non-Pulmonary Tuberculosis.

In regard to non-pulmonary tuberculosis, the table below divides the deaths into the sexes and age-groups, the figures in this case being available from 1912 :—

TABLE 2.

Average for three years, or year.	Estimated sex population of Admin. County.	Non-Pulmonary deaths in various age-groups *							Death rate per 1,000 of sex popn.
		0 to 5	5 to 15	15 to 25	25 to 45	45 to 65	65 & over	Total Deaths	
<i>Males—</i>									
1912-14 ...	840,019	148	62	25	30	27	5	297	0·35
1915-17 ...	†	117	62	28	31	23	3	264	†
1918-20 ...	†	67	52	28	24	19	2	192	†
1921-23 ...	836,754	76	45	36	33	21	6	216	0·25
1924-26 ...	848,134	69	33	31	26	21	4	175	0·20
1927 ...	855,117	52	31	24	20	15	5	147	0·17
1928 ...	860,199	57	24	32	25	19	7	164	0·19
<i>Females—</i>									
1912-14 ...	908,309	123	54	36	29	19	5	266	0·29
1915-17 ...	†	91	48	34	34	21	5	232	†
1918-20 ...	†	70	41	31	37	19	7	204	†
1921-23 ...	924,887	52	45	29	31	14	6	177	0·19
1924-26 ...	937,466	49	29	29	24	16	7	154	0·16
1927 ...	945,183	43	23	23	36	18	6	149	0·15
1928 ...	950,801	30	19	24	27	15	8	123	0·12

* These are the actual numbers of deaths ; it has not been possible to calculate the death-rates in each age-group owing to the difficulty in estimating the population year by year in those groups.

† Death-rates not calculated owing to the difficulty of accurately estimating the sex population during the war years.

The most striking fact revealed by the table is the big reduction in the past seventeen years in the numbers of deaths in the first five years of life, and to a smaller extent at ages 5-15. Comparing 1928 with 1927, an increase has taken place in the male deaths but this is more than counterbalanced by a decline in the female mortality. The sex death-rates—male 0·19 and female 0·12—show a greater divergence than in any previous year.

REASONS FOR THE DECLINE.

(a) Pulmonary Tuberculosis.

It will have been seen from the chart three pages back that there has been a continuous decline since 1922 in the pulmonary death-rate in the County, with 1928 providing for the sixth consecutive year a record low rate.

Can the present rate of fall be maintained? The problem is a difficult one. There are many factors operating for and against.

Some suggest that the human race is acquiring a higher degree of immunity to the tubercle bacillus. Then, there are those who believe that nutrition, measured by the advance or otherwise of the purchasing power of wages has a definite effect, and most tuberculosis workers are in agreement that this is a most important factor, as the Great War showed.

Again, it must be remembered that there have been considerable advances in sanitation in the homes and workshops, and improved personal hygiene and education play their part. All these factors have assisted in reducing the general death-rate and undoubtedly have diminished tuberculous infection; *but in recent years the tuberculosis death-rate has declined at a greater rate than the deaths from all causes.*

Finally, there is the super-added factor of the public schemes for the prevention and treatment of tuberculosis commencing in 1912, and developing mostly after the War. The special measures provide for the supervision of the patients' home conditions, the instruction of the patients in the means of preventing the spread of infection, the isolation in hospitals of infective cases with bad home conditions, and so on.

We may note here the big fall in the number of cases of pulmonary disease. There were some 2,820 notified in 1914—but only 1,660 in 1928.

I believe that these special measures are having a marked effect on the prevalence of tuberculosis. But the depression, now entering upon the seventh year, in the staple industries of Lancashire, is undoubtedly operating against greater progress, and if it continues temporary set-backs may be expected.

(b) Non-Pulmonary Tuberculosis.

Tuberculosis of the bones, joints, glands, peritoneum and skin may be of the bovine type or human type.

Recent researches undertaken in this County leave no doubt that an "open" pulmonary case may be the cause of non-pulmonary

infection of a child (see page 22). Consequently the reduction in the pulmonary cases, the supervision exercised by the dispensary staff, and the isolation, where necessary, of cases in hospital, are all factors helping to reduce the number of children with non-pulmonary disease.

CASES AND DEATHS.

Table 3 below shows the actual number of cases notified and the deaths registered during the sixteen years 1913 to 1928 in the Administrative County :—

TABLE 3.

Year.	Cases Notified.			Deaths.			Death-rate per 1,000 of population.		
	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Total.	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Total.	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Tuberculosis (all forms)
1913	2,700	1,592	4,292	1,441	527	1,968	0·82	0·30	1·12
1914	2,820	1,140	3,960	1,523	572	2,095	0·87	0·32	1·19
1915	2,872	1,128	4,000	1,614	555	2,169	0·96	0·34	1·30
1916	2,689	1,180	3,869	1,685	471	2,156	1·04	0·29	1·33
1917	2,375	1,062	3,437	1,584	466	2,050	1·00	0·30	1·30
1918	2,534	885	3,419	1,652	435	2,087	1·07	0·28	1·35
1919	2,105	847	2,952	1,339	358	1,697	0·80	0·22	1·02
1920	2,084	968	3,052	1,323	396	1,719	0·76	0·23	0·99
1921	2,044	899	2,943	1,301	376	1,677	0·73	0·21	0·95
1922	1,863	956	2,819	1,362	389	1,751	0·77	0·22	0·99
1923	1,937	1,188	3,125	1,250	412	1,662	0·70	0·23	0·93
1924	1,972	1,120	3,092	1,215	339	1,554	0·68	0·19	0·87
1925	1,846	1,027	2,873	1,205	361	1,566	0·67	0·20	0·87
1926	1,828	953	2,781	1,158	286	1,444	0·64	0·16	0·80
1927	1,794	1,045	2,839	1,105	296	1,401	0·61	0·16	0·77
1928	1,660	956	2,616	1,066	287	1,353	0·58	0·15	0·74

In Appendix I. are given the deaths and death-rates from pulmonary and non-pulmonary tuberculosis in 119 urban and rural sanitary districts in the Administrative County, and in the several dispensary areas.

The notifications of tuberculosis in 1928 are dealt with further in Appendix II, where folding Tables B, C, and D, are inserted, analysing them as regards the parts of the body affected, age, and sex.

II.—RESEARCH WORK AND NEW METHODS OF TREATMENT.

The County Council have adopted the policy of encouraging the tuberculosis medical staff, in addition to their ordinary duties, to engage in research work, and to give trials to the various new methods of treatment of the disease which are, from time to time, recommended as “cures” for tuberculosis, provided, of course, that there are one or more patients prepared voluntarily to co-operate in the experimental work. The Council have voted a sum of £200 per annum for research work during the past few years. This sum may appear small for the purpose, but it must be remembered that the resources of the County tuberculosis scheme (e.g., services of staff, use of premises, laboratory facilities) are available without any charge against the research fund. Further, new preparations are often offered for trial free of charge.

FATE OF YOUNG CHILDREN IN TUBERCULOUS HOUSEHOLDS.

With regard to research on “The Fate of Young Children in Tuberculous Households,” the full report on this subject was issued in March, 1929, as a separate publication of 39 pages. For reasons of space it is only possible to reproduce here the introduction and the summary and conclusions, which are as follows :—

In April, 1925, the Research Committee of the Joint Tuberculosis Council, in dealing with subjects suitable for research on a territorial basis, passed a resolution inviting the Lancashire group of tuberculosis officers to undertake an enquiry into “The Fate of Young Children in Tuberculous Households,” in the Geographical County of Lancaster. The Committee requested one of their members, Dr. G. Lissant Cox, Central Tuberculosis Officer of the Lancashire County Council, to act as “convener” of the Group.

The resolution of the Research Committee of the Council was conveyed by the convener to the chief tuberculosis officer of each of the seventeen county boroughs in Lancashire and to the consultant tuberculosis officers of each of the five dispensary areas and the two sub-areas in the Administrative County of Lancaster. The average population for 1921–26 of the county boroughs was 3,246,640, and of the Administrative County 1,774,663, making a total of 5,021,303 for the Geographical County. These tuberculosis officers were invited to assist in the research by furnishing histories of children in their areas who had been exposed to the risk of infection by living in a household where lived an adult person suffering from tuberculosis (pulmonary or non-pulmonary), and to prepare a scheme for carrying out the research.

The tuberculosis officers of the following areas agreed to assist :

(i) *Lancashire County Boroughs.*

Blaekburn (Dr. G. C. F. Roe)	Preston (Dr. J. Walker)
Bootle (Dr. R. Hannah)	Rochdale (Dr. J. C. Robertson)
Burnley (Dr. M. C. R. Grahame)	Southport (Dr. W. E. Fitzgerald)
Liverpool (Dr. B. T. J. Glover)	Warrington (Dr. A. Delmege)
Manechester (Dr. D. P. Sutherland)	Wigan (Dr. H. Whitehead, M.O.H.)
Oldham (Dr. H. Paul)	

(ii) *Administrative County of Lancaster.*

Dispensary Areas 1, 2, 3, 4, 5 (average population 350,000) and Furness and Fylde Sub-Areas (average population 49,000) (Drs. A. D. Brunwin, B. MacPhee, the late J. Logan Stewart, G. Jessel, C. W. Laird, E. H. A. Pask, and G. Leggat respectively).

It was decided to proceed with the research on the following main lines :

- (a) To adopt a form on which to give the history of the children of each household in which one or more ehildren lived or were living in contaet with an adult ease (15 years of age or over) of pulmonary or non-pulmonary tubereulosis.
- (b) Supplies of the forms to be sent to those undertaking the research, and on completion the forms to be returned to the convener for tabulation.
- (c) No particular number of forms to be demanded from any tuberculosis officer ; the number would be dependent on the opportunity of the tubereulosis offieer and his staff to obtain the information.

Summary and Conclusions.

1. The research embraces the analysis of the histories of 1,486 children in Lancashire under five years of age living in 1,063 homes, in each of which there were one or more adults suffering from tuberculosis. There has been no selection of cases by tuberculosis officers, and no undue proportion from any particuar area or areas.

2. Of the children dealt with in this research, the substantial majority remained, throughout their period of observation, in constant contact with an adult tubereulous ease in their homes, after allowing for those adults who received several months institutional treatment and for a small number of children who were removed for varying short periods to the homes of relatives.

3. The death-rate from *non-pulmonary tuberculosis* of children exposed to risk in tuberculous households from an adult with *positive sputum* was greatly in excess of the rate from the same cause in the Geographical County of Lancaster, serving as the "control"—the rate being :—

Nine times greater in the age-group 0—1 year ;

Fourteen times greater in the age-group 1—2 ;

Nineteen times greater in the age-group 2—5.

This great excess of non-pulmonary tuberculosis is mainly due to deaths from tuberculous meningitis, which accounted for two-thirds the mortality in the non-pulmonary group, ages 0—5.

4. Similarly (although statistically insignificant owing to the probable error due to chance), the death-rate from *non-pulmonary tuberculosis* of children exposed to risk in tuberculous households with an adult case or cases suffering from pulmonary tuberculosis, with *negative or no sputum*, was also in excess of the rate from the same cause among children in the Geographical County of Lancaster, the rate being :—

Three times greater in the age group 0—1 ;

Four times greater in the age-group 1—2 ;

Ten times greater in the age group 2—5.

5. The deaths from *pulmonary tuberculosis* of children exposed to risk in tuberculous households were too small upon which to base any conclusion.

6. The death-rate from *causes other than tuberculosis*, on the other hand, was appreciably less among the children aged 0—1 and 1—2 exposed to risk from an adult with pulmonary tuberculosis than in the corresponding child population in Lancashire. From 2—5 years, however, the position was reversed.

7. With regard to the deaths from *all causes* :—

(a) We have found that in the first year of life the children in tuberculous households had a death-rate significantly below the corresponding rate in Lancashire, 15 per cent. less when the infective case had a positive sputum, and 46 per cent. less when the sputum was negative or absent. This lower mortality of the children exposed to risk appears remarkable, but it must not be overlooked that the tuberculous household is under the supervision of the medical and nursing staffs, who are able to give advice as to the feeding and health of the children as well as to obtain assistance for necessitous cases.

In connection with this lower mortality from all causes in children under one year, Dr. C. W. Laird draws attention to the work of Professor Abderhalden of Halle who claims to have discovered proteolytic ferments in the blood of pregnant women which were not to be found apart from pregnancy.

- (b) Between 1–2 years, the death-rate was almost the same as the corresponding rate for Lancashire.
- (c) In age group 2–5 years, the death-rate was significantly higher—due in part to the much greater mortality from tuberculosis—among the children in tuberculous households than in the “control,” being five times greater when the infective case had a positive sputum, and three times greater when negative or absent.

8. The mortality rate from tuberculosis was greater amongst the children of tuberculous positive sputum mothers than fathers.

9. Taking a period covering the whole first five years of life, those children who were in contact at home with an adult person suffering from pulmonary tuberculosis (whether sputum positive or negative), did not have a higher mortality from all causes when compared with the expectation of life of children in England and Wales.

10. The calculation made by Professor A. Calmette, that in France 24 per cent. of the children of tuberculous mothers die from tuberculosis in the first year of life if left with the mother is many times higher than our Lancashire experience. This research shows that the death-rate from tuberculosis for corresponding Lancashire children was 3·2 per cent. ; and further, from all causes the rate was only 11·5 per cent.

11. Further, the Lancashire investigation shows for children observed from birth to 4 years of age a death-rate, from tuberculosis, and from all causes, a little lower than the French figure for children observed from one month to 4 years vaccinated with “B.C.G.” ; and much lower than for the French children unvaccinated with “B.C.G.”

NEW METHODS OF TREATMENT.

New methods of treatment have been tried generally on patients at County sanatoria and hospitals, as it has been found more satisfactory to have the patients under the constant supervision, care and control of the medical superintendent and his staff.

I reported in 1927 that the following fifteen methods of treatment had been tried :—(1) Alipoid T.B.E. (prescribed by Prof. Dreyer); (2) Dr. Paget's insufflator, by means of which dried tuberculin is drawn into the nostrils; (3) Pneumosan; (4) Endocrine substances; (5) "Yadil"; (6) Mr. Stevens' drug (Umckaloabo); (7) The "Newell" preparation; (8) Prof. Gabrilovitch's "La Phagolysine"; (9) Sodium morrhuate; (10) Colloidogenine; (11) Angiolymphc; (12) Ostelin; (13) Nascent iodine; (14) Casco; (15) Friedmann's vaccine. In none of these trials could it be said that the preparation used had any good influence on the progress of the patient.

In regard to No. (12) the following additional report has been received on a trial of Ostelin on adult female patients at the High Carley Sanatorium. Previously the preparation had been tried by Dr. Pask on children at the Oubas House Sanatorium.

(12) *Ostelin.*

Ostelin is claimed to be a preparation of the active medicinal portion of cod liver oil, separated from the fatty constituents of the oil, and presenting the Vitamin D, the factor which gives to cod liver oil its therapeutic value, in very high concentration.

The preparation is available in several forms, and Dr. Pask chose Ostelin in glycerine and administered it by the mouth in the following prescription :—Ostelin minims 48; Calc. Glycerophos. soluble grs. 24; Mueil Tragac. drs. 4; Ol Menth. Pip. minims 6; Syrup ozs. 1; Aq. Chlor. add to ozs. 6. Half an ounce t.d.s.

This mixture was given regularly over a period of three months to four women patients undergoing treatment at High Carley Sanatorium, and the results were as follows :—

- Case "A" progressively lost weight both before, during, and after the treatment.
- Case "B." The weight remained stationary during the treatment, but afterwards the patient lost weight.
- Case "C" put on weight during the treatment, but when Ostelin was discontinued the gain in weight was not so rapid.
- Case "D" gained weight whilst having Ostelin, but lost weight after this treatment was discontinued.

The following additional methods of treatment have been tried since the last report :—

(16) *Tuberculin B.E. (Parke Davis).*

During 1928, Dr. Pask tried this preparation on a series of cases at the High Carley Sanatorium. The Tuberculin employed was B.E. (Parke Davis) supplied in tablets which can be used as required by dissolving in sterile water. It would be more correct to describe the resulting liquid as a suspension rather than a solution.

A most careful system of dosage was employed and was only increased in the absence of the slightest reaction of any sort. The injections were given twice weekly for the most part. In no cases was there anything approaching a severe local, focal, or general reaction. Slight headache, slight rises in the pulse rate, or slight loss of weight were taken as mild reaction, and the subsequent dose was regulated accordingly.

The average length of time the treatment was employed was three months. Ten cases, a successive series of admissions from a particular area, were treated. There was no selection of patients; both early and late stage cases received treatment unless there was any contra-indication.

The bacillary loss in the sputum in these cases worked out at 18·18 per cent., whereas the bacillary loss of all sanatorium patients for 1928 was 18·69 per cent. The average gain in weight was $2\frac{1}{4}$ lbs. for the patients who received this form of treatment, as against an average gain of 11 lbs. for all the cases discharged from the sanatorium during the year.

These figures tend to show that the results were worse in the Tuberculin-treated patients than in the case of those who received ordinary sanatorium treatment. It might be urged that the time during which the treatment was employed was too short to draw any definite conclusions, but it was considered that the patients had not derived sufficient benefit to justify continuance of the treatment.

(17) *Dr. Jenkins' Vaccine.*

Dr. Jenkins, pathologist of the Salford Royal Hospital, contributed an article to the medical press in July, 1928, dealing with an antigen which he had prepared and used for the treatment of tuberculosis. The antigen is described by Dr. Jenkins as consisting of an alkaline extract of human and bovine tubercle bacilli added to the products of digestion of the bacilli by pepsin, the bacilli having first been treated with ether. The combined alkali and pepsin fractions are then passed through a filter candle and neutralised; the neutral fluid is subsequently standardised. A course of treatment consists of weekly subcutaneous injections of increasing doses of the antigen and lasts about 17 weeks.

Dr. G. Jessel tried this remedy on seven dispensary patients and two patients at the Peel Hall Pulmonary Hospital. Of the dispensary cases, five were pulmonary and two non-pulmonary. Three of the pulmonary cases were of a chronic ambulant type, all with tubercle bacilli in the sputum. They received a full course, but their condition was apparently the same at the end of the treatment as at the beginning. One patient (C.B.) aged 38, had about half the course, but as her temperature range was 100° to 102° it was stopped, and shortly after she was admitted to a pulmonary hospital; another patient (J.F.) male, aged 26, had almost a complete course, but died. Of the two pulmonary cases treated in the Peel Hall Hospital, one declined the treatment after the first three or four injections. The other case, (H.) male, aged 49, was a chronic case with marked fever before, during, and after treatment. His condition was apparently unchanged. Of the two non-pulmonary cases, one (J.B.) aged 63—general tuberculosis and chest sinus—had amputation of leg and removal of testicle when other testicle became infected. The other (J.B.) aged 35, had one tuberculous testicle removed and the other showing signs of disease. In both non-pulmonary cases the general condition is satisfactory and the local condition shows some improvement.

To sum up: only a small number of cases have been dealt with. Three of the dispensary pulmonary cases were of the chronic ambulant type who had received hospital treatment and were doing quite well before the injections began. Their condition remained unchanged. Of the other two pulmonary cases, neither completed the course; one dying, and in the other case the treatment was stopped owing to persistent rise of temperature. The febrile hospital case made no improvement. The two non-pulmonary cases have improved during the injections, but it would be impossible definitely to ascribe the improvement to the use of the antigen.

The antigen may possibly have some value as an adjunct to treatment in non-pulmonary cases, but it does not appear to have had any influence in the progress of the pulmonary cases.

Dr. A. D. Brunwin also gave a trial of the vaccine to 11 dispensary adult patients—nine of whom were pulmonary cases with a positive sputum, being mainly chronic or advanced cases, and two non-pulmonary cases (kidneys and glands). Five of the pulmonary cases had a full course of treatment, that is, they were given doses up to 1 c.c. of dilution 9. In the remaining four pulmonary cases treatment was discontinued owing to the patients' condition becoming worse. The two non-pulmonary cases are still under treatment and their condition is improving. In Dr. Brunwin's opinion the vaccine does not seem to differ in its action from other forms of tuberculin and it cannot be said that any markedly good effect was noticed. Dr. Jenkins made no claims for the vaccine except that the results obtained by its use were as good as those obtained from sanatorium treatment. Dr. Brunwin does not consider that the results justify a general trial of the tuberculin at present, but further experimental work with a different system of administration might be tried.

(18) *Sanocrysin*.

A double thio-sulphate of gold and sodium introduced by Professor Moellgaard, of Denmark, for the treatment of tuberculosis.

Dr. Jessel is undertaking a trial of this form of treatment and he has furnished the following notes on a first series of eleven adult male patients who received a full course of Sanocrysin treatment at the Peel Hall Pulmonary Hospital. The cases all had tubercle bacilli in the sputum, and were of an acute or a moderately advanced type of tuberculosis such as appeared unsuitable for artificial pneumothorax treatment, and had not responded, or appeared unlikely to respond, to strict bed-rest alone. The doses of Sanocrysin were given at weekly intervals as follows :—0·1, 0·2, 0·35, 0·5, 0·6, 0·75 and 1 grm., the last being sometimes repeated at a slightly longer interval. In each case the urine had been previously tested and found free from albumen. The patients on the whole took the treatment very well, and the complications were few. In one case, (Q.) a red-haired youth aged 17, there was persistent vomiting three days after the last dose with troublesome diarrhoea, and the boy ultimately died. The immediate results of the eleven cases were quite encouraging, as, although two patients died, the remainder showed varying degrees of improvement, and in one or two cases this was quite striking. As it is well known that a definite proportion of acute and chronic cases of pulmonary tuberculosis respond well to strict bed-rest followed by carefully graduated exercise, it will be necessary to treat a much larger number of cases with Sanocrysin before definite conclusions as to its value can be formed; moreover, it will be necessary to compare the ultimate results of cases so treated with similar cases treated by other means. So far the further use of Sanocrysin would appear to be justified.

Dr. Pask, medical superintendent of the High Carley Sanatorium, also commenced, in 1929, a trial of Sanocrysin, but insufficient time has elapsed for any report on the results.

Although no specific remedy for tuberculosis has yet been found, the fact must not be overlooked that by the ordinary methods of treatment up to the end of 1928 there have been, in this County, 4,533 patients (2,155 pulmonary and 2,378 non-pulmonary) diagnosed and notified as suffering from tuberculosis written off the register of tuberculous cases as "cured."

(N.B.—As suggested by the Ministry of Health, a pulmonary case is considered cured if without symptoms for five years, and a non-pulmonary case if without symptoms for three years.)

III.—TREATMENT OF TUBERCULOSIS BY ARTIFICIAL LIGHT.

PRESENT POSITION OF THE COUNTY SCHEME.

Commencing with two experimental light centres in 1925, the County scheme has been extended and up to October, 1929, twelve centres had been established at tuberculosis dispensaries.

At the outset, I wish to refer to recent reports^{1&2} issued by the Medical Research Council (responsible to the Privy Council) which deal extensively with the value of artificial light for the treatment of a number of complaints, e.g. wasting diseases, the common cold, anæmia, tuberculous ulcers, etc. The Council deprecated the extravagant claims which had been made for artificial light as a cure for all and sundry diseases, and called for further scientific research to prove its uses. Unfortunately these reports, when summarised in the Press, have given rise to much misconception among the general public, and it was generally understood that the Medical Research Council had condemned the use of ultra-violet irradiation. This, however, is not the case for, so far as the treatment of tuberculosis was concerned, the report¹ supported the use of artificial light, as the following extract shows: “There is much concordant testimony to the value of regulated skin exposure to artificial light, as being adjuvant in the cure of chronic infections like those especially of tuberculosis.”

The Chief Medical Officer (Sir George Newman) of the Ministry of Health makes the position clearer, for he states in his annual report for 1928 that “the best results of artificial light therapy continue to be obtained in the treatment of rickets, lupus vulgaris, and surgical tuberculosis.”

The Scottish Board of Health in their 1928 report state that “It is satisfactory to note that the facilities for artificial light therapy, now available at many of the out-patient clinics, enable the less severe cases to be treated *without the necessity of residential treatment*.³ Good results are being obtained from light therapy in cases where the disease affects the small bones or joints (of the hand, etc.), in gland cases and cases of lupus.”

¹ Report of the Medical Research Council for 1927–28.

² “Irradiation and Health,” Special Report by Dr. Dora Colebrook to Medical Research Council, No. 131, 1929.

³ My italics.

Treatment of tuberculosis by artificial light has also been provided by other authorities in England and Wales. The methods and results of three very large authorities are given below :—

London County Council.—Arrangements were made for the dispensary tuberculosis officers to send cases for light treatment at certain hospitals and centres throughout London. Very little use, however, was made of the scheme, an average of six cases being sent from each of the 19 boroughs in a period of nine months. The reports of the tuberculosis officers “disclosed practically no evidence of benefit having been derived by the patients from this form of treatment.” Further, the experience gained in 1928 confirms the view “that the best results are obtained when light treatment is given as an additional method of treatment under suitable conditions in residential institutions in the country where all methods of treatment are available in addition to fresh air, good food, and a regular regime.”¹

Wales.—(The King Edward VII. National Memorial Association.)—Scheme provides for the treatment of patients at light centres established at several of their tuberculosis hospitals and sanatoria and at one dispensary. In non-pulmonary tuberculosis ultra-violet rays are of very great value indeed. For example, in lupus, artificial sunlight is the only satisfactory method of treatment and cure can be obtained by this means alone. In tuberculosis of the glands, especially if broken down and discharging, treatment by ultra-violet light is the most useful and beneficial method yet devised. In tuberculous peritonitis the results obtained are equally satisfactory, and compared with other methods show a definite shortening of the time required for treatment.²

Birmingham.—Artificial light treatment is as a rule given to non-pulmonary patients when in the sanatorium and continued after they have been discharged. The light centre is situated at the City Sanatorium, Yardley Road, Birmingham “The tendency to regard the application of artificial light to those suffering from tuberculosis as a complete method of treatment in itself should be guarded against. The best results can only be obtained when it is associated with other forms of treatment.”³

It is remarkable that the cases tried in London have been so few and the results so disappointing. The tuberculosis officers of the Metropolitan Boroughs do not, with few exceptions, themselves carry out the treatment as in Lancashire. Unless the incidence of the disease is vastly different from that in Lancashire, I suggest the dual control has caused the unsatisfactory results.

The Lancashire scheme has so far treated 950 patients, and it has undoubtedly been successful : (a) in the results of treatment attained ; (b) in convenience to the patients by permitting treatment near their homes and enabling three-fourths of them to continue their normal occupations ; and (c) in effecting a substantial saving over other forms of treatment. Its success has been due to the fact that the

¹ Annual Report of the Council, 1928, Vol. III. Public Health.

² XVII. Annual Report, 1928–29, Report of Principal M.O.

³ Report on Tuberculosis for 1928.

tuberculosis medical staff have had facilities given them by the County Council to specialise in light therapy, the experimental work lasting for two years before the scheme was applied over the whole Administrative area.

ESTABLISHMENT OF LIGHT CENTRES AT TUBERCULOSIS DISPENSARIES.

The following Table 4 shows the eleven centres which have been opened at County tuberculosis dispensaries up to the end of 1928, together with the lamp equipment :—

Tuberculosis Dispensary.				Light Centre Opened.	Lamp equipment as in June, 1929.
Lancaster	...	...	...	15/7/25	1 Carbon arc ("Sunrae"). 1 Kromayer mercury vapour. 1 Hanovia mercury vapour.
Ashton-under-Lyne	...	...	...	11/9/25	2 Carbon arcs ("Sunrae"). 1 Kromayer mercury vapour. 1 Jesionek mercury vapour. 1 Sollux (luminous heat rays).*
Chorley	...	...	...	14/10/26	1 Carbon arc ("Alpine Sun"). 2 Jesionek mercury vapour. 1 Kromayer mercury vapour.
Preston	...	...	...	29/11/27	1 Carbon arc ("Alpine Sun"). 1 Tungsten arc. 1 Kromayer mercury vapour.
Eccles	...	...	...	1/12/27	2 Carbon arcs ("Sunrae"). 1 Kromayer mercury vapour. 1 Jesionek mercury vapour. 1 Murray-Levieck infra-red.†
Stacksteads	...	...	...	9/1/28	2 Jesionek mercury vapour. 1 Kromayer mercury vapour.
St. Helens	...	...	...	16/1/28	2 Carbon arcs ("Sunrae"). 1 Kromayer mercury vapour.
Ulverston	...	...	...	5/6/28	2 Carbon arcs ("Sunrae"). 1 Kromayer mercury vapour.
Fleetwood	...	...	...	25/6/28	2 Carbon arcs ("Sunrae"). 1 Kromayer mercury vapour.
Radcliffe	...	...	...	20/7/28	2 Carbon arcs ("Sunrae"). 1 Kromayer mercury vapour. 1 Jesionek mercury vapour. 1 Sollux (luminous heat rays).‡
Nelson	...	...	...	20/11/28	2 Carbon arcs ("Sunrae"). 1 Kromayer mercury vapour. 1 Jesionek mercury vapour.

* Gift of the Ashton-under-Lyne and District Care Committee.

† Purchased from voluntary funds.

‡ Gift of the Radcliffe, Whitefield and District Relief Fund.

RESULTS OF TREATMENT.

Tables showing the results of treatment at each light centre are included in Chapter VII., commencing on page 52, which contains the reports from the dispensary areas. The tables in question have been summarised in the following form which represents the work done at the eleven centres in the County during the year 1928 :—

TABLE 5.

Form of tuberculosis or part of body affected.	Number of cases on treatment on 1-1-28	Number of cases commencing treatment in 1928.	Conditions of patients whose treatment concluded in 1928.				Ceased treatment for other reasons. *	Still under treatment at end of 1928.
			Quiescent and apparently cured.	Improved.	Stationary	Worse.		
Skin (lupus and scrofulo-derma)	68	168	45	5	—	—	19	167
Adenitis with abscess formation and skin involvement ...	27	140	52	4	3	—	24	81
Adenitis without softening ...	13	125	49	8	4	—	17	60
Bones, joints and spine... ..	27	75	19	2	1	—	23	57
Abdomen	11	28	15	3	1	1	6	13
Other non-pulmonary conditions	4	24	5	—	—	—	6	17
Pulmonary tuberculosis :—								
Lungs—sputum positive ...	—	2	—	—	—	—	1	1
sputum negative...	—	2	—	—	—	—	2	—
Bronchial glands	1	5	4	1	—	—	1	—
Pleura	2	1	1	—	1	—	—	1
Pulmonary and non-pulmonary combined :—								
Sputum positive and bones	—	2	—	—	—	—	—	2
Sputum positive and glands	—	1	—	—	—	—	—	1
Total for 1928	153	573	190	23	10	1	99	403
For comparison, the total in 1927 was	303		110	1	4	1	34	153

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

† Adults, 419 ; children, 307.

In addition to the 726 active cases dealt with in the foregoing table, there were 87 cases—all non-pulmonary—whose condition was quiescent on commencing light treatment and remained so until the completion of the course. The object of treatment was to prevent a possible recurrence of active disease.

In considering the results of treatment, it must be remembered that six of the centres only commenced giving light treatment in 1928, and consequently sufficient time did not elapse in which to complete the treatment of the majority of patients.

The results of treatment of cases of non-pulmonary tuberculosis in 1928 may be considered satisfactory, particularly for two groups of cases, namely : (i) skin (lupus and scrofulo-derma), and (ii) adenitis

with abscess formation and skin involvement. These two conditions are usually refractory to other forms of treatment.

Of the total patients attending the light centres, 73 per cent. were able to continue their normal occupation during the course of treatment.

The average gain in weight of the 190 patients who became "quiescent and apparently cured" was as follows :—adults 3·05 lbs. ; children 3·20 lbs.

The degree of pigmentation attained in these 190 patients was : deep 38, medium 66, light 54, none 32.

AVERAGE DURATION OF TREATMENT.

The duration of treatment has varied widely according to the type of non-pulmonary disease. Taking the several groups of cases in which the disease has become "quiescent and apparently cured" the average duration is as follows :—

TABLE 6.

Form of tuberculosis or part of body affected.	Number of cases (active on commencing light treatment) who became "quiescent and apparently cured."	Average duration of light treatment.	<i>For comparison : Average duration of disease before commencing light treatment.</i>
		Months.	Months.
Skin (lupus and scrofulo-derma)	45	7·77	161·84
Adenitis with abscess formation and skin involvement ...	52	5·62	23·59
Adenitis without softening ...	49	5·33	22·24
Bones, joints, and spine ...	19	8·51	36·15
Abdomen... ..	15	5·51	14·13
Other non-pulmonary conditions	5	4·80	8·20
Bronchial glands	4	13·00	43·00
Pleura	1	4·00	4·50
All types of tuberculosis ...	190	6·46	56·40

The frequency of attendance of patients depends on several factors, but at eight of the centres the great majority of patients attend twice per week, and at the other centres thrice per week. One-fourth of the patients were assisted by the payment of railway, 'bus or tram fares to the light centre.

COST OF LIGHT TREATMENT.

The following statement shows the cost of artificial light treatment at ten of the centres (the Nelson centre has been excluded as it was only opened at the end of 1928) :—

Average number of patients under treatment in any one week	...	399	
Average cost per patient per week :—			s. d.
Carbons and current	... ..	—	5
Standing charges (<i>including proportion of time of tuberculosis officers, tuberculosis health visitors, fuel, light, cleaning, rent, rates, and depreciation</i>)...	... ..	3	8
Total	... ..	4	1

The cost of light treatment should, however, be considered in conjunction with other forms of treatment which otherwise some of the patients would in all probability have received. Taking the 190 cases which have become quiescent after treatment at the ten light centres, 48 of the cases would have been recommended for admission to special or general hospitals, 3 to sanatoria, and 62 for out-patient treatment at the Manchester Skin Hospital.

Knowing the average duration of institutional treatment for such cases and the cost, one can make a comparison between the expense involved in light treatment for these 190 patients and ordinary institutional treatment :—

Actual complete cost of 190 patients cured by light treatment at County dis- pensaries :— £1,150	Estimated cost of resi- dential and out-patient treatment if patients had been sent to hospitals :— £2,395
--	--

Thus, apart from other considerations, a very considerable financial saving—£1,245—has been effected on the treatment of these 190 patients.

Related to the opening of the light centres is the diminution in the number of cases who have to travel from all parts of the County to the Manchester Skin Hospital out-patient department :—

Dec. 31, 1924—Number of patients attending Skin Hospital	...	284
Do. 1928—	do. do.	... 46



Case No. 1. J.D., aged 20. (a) Scrofulo-derma. Duration of disease before light treatment commenced, 3 years. Previous treatment, nil.



(b) Condition after nine months' treatment at dispensary light centre with general carbon arc baths and Kromayer locally. Gain in weight, $4\frac{1}{2}$ lbs., slight pigmentation. Able to remain at work during light treatment. Disease now quiescent.

[Photographs taken at Ashton-under-Lyne Dispensary]



Case No. 2. J.F., aged 17. (a) Tuberculous adenitis with abscess formation and skin involvement. Duration of disease before light treatment commenced, $9\frac{1}{2}$ years. Previous treatment:—incision and scraping at general and special hospitals. Condition in April, 1928.



(b) Condition after ten months' treatment at dispensary light centre with general carbon arc baths and Kromayer locally. Gain in weight, 8 lbs., pigmentation fair. Able to remain at work during light treatment. Disease quiescent.

[Photographs taken at Ashton-under-Lyne Dispensary]



Case No. 3. A.S., aged 64. (a) An old standing case of lupus of the neck and cheek. Duration of disease before light treatment commenced, 35 years. Previous treatment:—X-rays at a special hospital. Photograph shows condition of patient in March, 1928.



(b) Condition showing improvement after eight months' treatment at dispensary light centre with general carbon arc baths; the white area below and behind the ear is occupied by a supple scar from which active foci of disease have disappeared. Patient still undergoing light treatment.

[Photographs taken at Chorley Dispensary]



Case No. 4. C.O., aged 41. (a) Lupus of arm. Duration of disease before light treatment commenced, 12 years. Previous treatment :—X-rays, ointment, etc., at a special hospital. Photograph shows condition in April, 1928.



(b) Condition after ten months' treatment at dispensary light centre with general carbon arc baths and Kromayer locally. Gain in weight, 7 lbs., pigmentation slight. Patient able to remain at work during light treatment. Disease quiescent.

[Photographs taken at Ashton-under-Lyne Dispensary]



Case No. 5. O.M., aged 18. (a) Lupus, large scaly pink patches on left wrist. Duration of disease before light treatment commenced, 12 years. Previous treatment by ointment as an out-patient, and as in-patient at a special hospital, but then occurred a break of three years when no treatment was received owing to refusal of parents until patient accepted artificial light treatment at the dispensary.



(b) Condition after two months' light treatment at dispensary with carbon arc and local treatment (plaster and Kromayer lamp). Still continuing treatment. Weight stationary, pigmentation deep. Able to remain at work during treatment. Progress made in the two months has been remarkable.

[Photographs taken at Eccles Dispensary]

SUMMARY.

1.—Artificial light treatment has continued to give satisfactory results, particularly in regard to patients suffering from tuberculosis of the skin, and tuberculous adenitis with abscess formation and skin involvement, which conditions are very slow in yielding to other forms of treatment.

2.—Of the total patients attending light centres, 73 per cent. were able to continue their normal occupation during the course of treatment.

3.—One-fourth of the patients treated during the year were assisted by the payment of their railway, 'bus, or tram fares to the dispensary light centres.

4.—In regard to the 45 skin cases which became "quiescent and apparently cured," the average duration of the disease before the patients commenced light treatment was 13 years and 6 months; whereas the average duration of light treatment was $7\frac{3}{4}$ months.

5.—For the whole 190 cases which became "quiescent and apparently cured," the average duration of the disease before the patients commenced light treatment was 4 years 8 months; whereas the average duration of light treatment was $6\frac{1}{2}$ months.

6.—Of the 190 cases concluding treatment in 1928 on becoming "quiescent and apparently cured," the consultant tuberculosis officers would normally have recommended 113 for treatment at hospitals. Based on the average duration of treatment of such cases, the cost would have been not less than £2,395, whereas their treatment at the dispensary light centres actually cost (all inclusive) £1,150—a saving of £1,245.

PHOTOGRAPHIC RECORDS.

In order to record the progress made by patients, photographs have been taken of a number of cases treated by light—at commencement, during the course of treatment, and on termination.

Here inserted are photographs of five patients which have been selected as illustrating the effect of light treatment. The upper photograph shows the condition prior to commencing light treatment, and the lower photograph the appearance of the affected part on or towards the conclusion of treatment.

IV.—THE NOTIFICATION OF TUBERCULOSIS CASES.

It is the statutory duty of every medical practitioner to notify within 48 hours to the local medical officer of health any case of tuberculosis occurring in his practice, and the medical officer of health is charged with the duty of keeping a register of such cases reported in his sanitary district.

According to the returns made by the local medical officers of health to the County Council for the last quarter of 1928, there was a total of 12,845 tuberculous persons on the registers of the 119 sanitary authorities in the County. This figure includes, however, all the notified cases in mental hospitals, union infirmaries and other public institutions, and cases which are not suitable for treatment under the County scheme. The local registers are not all yet entirely correct, but one by one they are being compared with the County records of cases and, where necessary, corrections made to bring them up to date. This scrutiny of registers has involved much additional work at the central office and at the dispensaries, particularly in dealing with cases notified ten to fifteen years ago.

NON-NOTIFICATION.

I have continued to direct special attention to the notification of cases of tuberculosis, and have engaged in correspondence with medical practitioners, medical officers of health, and medical superintendents, over many individual cases.

The decline in the extent of non-notification of pulmonary cases in the Administrative County is shown in the following statement :—

TABLE 7.

	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Number of deaths from pulmonary tuberculosis recorded	1652	1339	1323	1301	1362	1250	1215	1205	1158	1105	1066
Number of these deaths not notified under Regulations during life	303	221	177	135	105	85	64	67	58	54	56

The striking and progressive improvement which has been secured in the notification of cases of pulmonary tuberculosis before death would not have been practicable without the cordial co-operation of the local medical officers of health and, of course, the general practitioners who make the notifications.

There is no doubt that in this Administrative County a much smaller proportion of cases of tuberculosis escapes notification than is frequently the experience in other parts of the country. Thus, we have fewer unknown cases or unknown sources of infection remaining outside the measures for the control of tuberculosis, and, in my opinion, this better notification is helping materially to reduce the number of new cases occurring.

For non-pulmonary tuberculosis, the proportion of non-notified fatal cases to total deaths from this form of the disease was in 1928 17·7 per cent. which is below the average (21·3 per cent.) of the years 1918 to 1927.

REASONS FOR NON-NOTIFICATION.

Since 1920 special investigations have been made into every individual death recorded from tuberculosis which had not been previously notified as a case under the Regulations, and the results of the investigations in 1927—which confirmed the findings of previous years—showed that (a) 24·6 per cent. of the deaths at private addresses related mainly to fulminating cases of pulmonary tuberculosis in adults and acute cases of meningitis in children, with no doctor in attendance at all, or only for a matter of a few days prior to death; (b) 24·6 per cent. were complicated cases presenting difficulty in diagnosis; (c) in 26 per cent. notification was not made owing to a misunderstanding of the Tuberculosis Regulations or to the belief that the case had already been notified by another practitioner; (d) 21 per cent. represented patients who were temporary residents or were already known to the tuberculosis officer, accidental omission on the part of the medical attendant to notify, and cases in which information not ascertained; (e) the instances in which there appeared to be no reasonable excuse for non-notification represented 3·8 per cent.

The efficiency of notification varies directly with the efficiency of the county council or county borough scheme dealing with tuberculosis. If there is no really comprehensive scheme, if there are poor and newly qualified, part-time, and badly paid tuberculosis officers, if there are insufficient means for expert diagnosis, and too few beds for treatment, then a high proportion of non-notified fatal cases will be the rule and not the exception.

TOTAL “KNOWN SOURCES OF POSSIBLE INFECTION.”

One effect of the better notification of cases by practitioners

has been to throw up the number of new cases in recent years and to make the figures disadvantageously comparable with the earlier years when a larger number of cases escaped notification.

It is, however, possible to obtain a truer record of the number of cases of pulmonary tuberculosis occurring year by year by, adding together (*a*) the notifications and (*b*) the deaths which occurred without notification being made during life ; this total gives clearly the number of known sources of possible infection as the following table shows :—

TABLE 8.

YEAR	Pulmonary Tuberculosis.		
	Cases Notified (during life)	Cases reported at time of death only.	Total known sources of possible infection.
1918	2,534	303	2,837
1919	2,105	221	2,326
1920	2,084	177	2,261
1921	2,044	135	2,179
1922	1,863	105	1,968
1923	1,937	85	2,022
1924	1,972	64	2,036
1925	1,846	67	1,913
1926	1,828	58	1,886
1927	1,794	54	1,848
1928	1,660	56	1,716

The decline in the number of “known sources of possible infection” of pulmonary tuberculosis is therefore considerably greater than the fall in the notified cases if taken alone.

V.—APPLICATIONS FOR TREATMENT.

Table 9 below shows the number of “ new ” persons (2,138) who applied for treatment under the County scheme during the year 1928 :—

TABLE 9.

	Number of Applications received during 1928.	Diagnosis of New Applicants for Treatment.			
		Pulmonary Cases.	Pulmonary and Non-Pulmonary.	Non-Pulmonary Cases.	Diagnosis not Confirmed (non-tuberculous).
Men	832	630	26	169	7
Women	782	551	21	201	9
Boys	279	42	8	220	9
Girls	245	58	8	179	5
TOTAL	2138	1276	63	769	30

Applications received in previous years were :—1918–21 average, 2,294 ; 1922–25 average, 2,183 ; 1926, 2,278 ; 1927, 2,369, compared with 1928, 2,138.

During 1928, there were 2,616 cases notified under the Public Health (Tuberculosis) Regulations as suffering from tuberculosis (all forms) ; whereas the number of persons who applied for treatment to the County Council was 2,138, equal to 81 per cent. of the notifications.

With regard to the balance (namely 19 per cent.) of the notifications, where the patients did not apply to the County Council for treatment, the principal reasons for this were : patients suffering from tuberculous meningitis or other fatal forms of the disease ; patients removed out of County area ; cases in which the diagnosis was not confirmed and no treatment required ; patients resident in mental hospitals and other public institutions, and patients who, for some reason or other, did not wish to avail themselves of the benefits under the County scheme.

CLASSIFICATION OF NEW PATIENTS.

(a) Pulmonary Tuberculosis.

During 1928, applications for treatment were received from 1,339 new patients, and these were reported by the tuberculosis officers to be in the undermentioned stages of the disease on the first examination :—

T.B. Minus (Sputum negative or absent) ...	...	547, or 40·8 per cent.		
T.B. Plus 1 (Early cases, sputum positive) ...	...	102, or 7·6	„	„
T.B. Plus 2 (Intermediate cases, sputum positive) ...	...	478, or 35·7	„	„
T.B. Plus 3 (Advanced cases, sputum positive) ...	...	212, or 15·8	„	„
		<hr/>		
		1,339	100·0	„ „
		<hr/>		

It is well known that, throughout the country, tuberculosis officers do not see many of the new cases in the early stages of the disease. Some patients through ignorance, others on account of economic reasons, neglect to consult a doctor when in the early stage, and so lessen their chance of recovery. In the Administrative County we have for several years made special investigations into the reasons underlying such disastrous delay on the part of patients. These investigations have been continued in 1928, yielding the following conclusions which correspond very closely with the conclusions published in previous reports :—

1.—Altogether 69 per cent. of the 212 advanced cases either had no doctor or had only been attending their doctor for less than two months when first examined by the tuberculosis officer or notified.

2.—After making allowance for a percentage of fulminating cases (“galloping consumption”), a large proportion—nearly three-fourths—of patients had felt ill for one or more months before consulting a doctor.

3.—The reason for late notification and patients delaying their application until in an advanced stage of the disease is chiefly the disinclination or unwillingness of the patients to report themselves to their doctor when feeling ill. This is due mainly to the insidious onset of the disease, the discomfort being only slight at first.

4.—There does not appear to be evidence in any large number of cases of unreasonable delay on the part of family doctors referring cases to the tuberculosis officer.

5.—The initiative to seek treatment when ill rests with the patient himself, and the only feasible remedy lies in the education of the public as to symptoms and common dangers of tuberculosis and the need for securing prompt treatment. This cannot be too strongly or too often emphasised.

With regard to the last conclusion 5, there are many difficulties in the way of reaching the people who most require such education. On the tuberculosis officer rests chiefly the duty of stimulating public interest, but an increasing number of sanitary authorities and voluntary care committees are assisting in propaganda work. More satisfactory results will, I think, accrue now that steps are

being taken to teach hygiene to the older children at school following on the issue in January 1928, by the Board of Education of a " Handbook of suggestions on Health Education for the consideration of teachers and others concerned in the work of public elementary schools."

The tuberculosis medical staff have to depend very largely on the general practitioners throughout the County for bringing forward tuberculous patients, and it is satisfactory to note that 86 per cent. of new cases are sent *before notification* to the tuberculosis officers for an opinion as to diagnosis. Too much importance is still laid by some doctors on sputum examinations alone, and often too long a time is allowed to elapse in order that the sputum may be tested; or steps are not taken to report the case until it is returned as " positive."

(b) *Non-Pulmonary Tuberculosis.*

There were 769 new cases diagnosed by the tuberculosis officers as suffering from non-pulmonary tuberculosis in the following forms :—

Bones and joints	200	} 769
Abdomen	...	...	...	95
Other organs	...	...	...	31
Peripheral glands	...	...	...	374
Skin ...	...	...	...	69

In 1927 the number of applications from non-pulmonary cases was 846.

VI.—SUMMARY OF WORK DONE THROUGH THE DISPENSARY ORGANISATION IN 1928.

NUMBER OF CASES UNDER SUPERVISION ON 31st DEC., 1928.

Table 10 shows the total number of persons in each area who were suffering or suspected to be suffering from tuberculosis, and who were under the supervision of the dispensary staff at the end of 1928. As a matter of interest, the number of cases per 1,000 of the population has also been calculated for each area :—

TABLE 10.—*Tuberculous Cases on Dispensary Registers on 31st Dec., 1928 (including 858 patients in Sanatoria and Hospitals).*

Dis- pensary Area.	Estimated Population, 31-12-28.	Number of Cases under Supervision on 31-12-28.						No. of Cases of Tuber- culosis under super- vision per 1,000 of Popu- lation.	No. of Doubt- ful Cases on 31-12- 28.
		Sex.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total No. of Cases.		
			Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.			
No. 1	260,601	M	56	271	119	117	1088	4.17	—
		F	43	215	122	145			
No. 2	354,883	M	11	318	82	146	1054	2.96	4
		F	6	271	65	155			
No. 3	373,152	M	25	532	161	207	1816	4.86	—
		F	38	453	126	274			
No. 4	343,716	M	30	518	146	201	1700	4.94	—
		F	26	396	145	238			
No. 5	378,246	M	99	580	241	171	2029	5.36	17
		F	96	423	203	216			
Furness	38,433	M	24	100	14	19	303	7.87	—
		F	25	83	11	27			
Fylde	61,969	M	11	108	58	47	413	6.66	3
		F	14	96	37	42			
TOTAL	1,811,000	M	256	2427	821	908	8403	4.63	24
		F	248	1937	709	1097			
			4868		3535				

The particulars of the patients on the County register at the end of the year have been further sub-divided in the following table so as to show the classification, whether active or quiescent, age-group and sex :—

TABLE 11.—*Analysis of Cases on the Dispensary Registers on the 31st December, 1928.*

(a) PULMONARY TUBERCULOSIS.

Age-groups.	Sex	T.B. Minus.		T.B. Plus 1.		T.B. Plus 2.		T.B. Plus 3.		Total.	
		Active	Quies.	Active	Quies.	Active	Quies.	Active	Quies.	Active	Quies.
0-5 years	M.	1	3	—	—	—	—	—	—	1	3
	F.	5	3	—	—	—	—	—	—	5	3
5-15 years	M.	81	160	2	3	4	—	2	—	89	163
	F.	69	151	3	4	10	2	1	—	83	157
15-25 years	M.	70	202	32	25	95	16	18	4	215	247
	F.	96	228	47	24	150	28	27	—	320	280
25-35 years	M.	63	156	80	77	142	34	19	1	304	268
	F.	71	195	57	41	159	32	20	2	307	270
35-45 years	M.	64	167	66	88	158	40	20	—	308	295
	F.	60	119	31	42	95	37	17	3	203	201
45-55 years	M.	54	121	45	60	142	35	19	2	260	218
	F.	46	86	18	20	52	15	7	2	123	123
55-65 years	M.	35	55	16	21	81	20	19	—	151	96
	F.	22	20	7	3	22	8	6	—	57	31
65 & over	M.	12	21	6	4	13	4	5	—	36	29
	F.	4	3	1	—	8	4	2	—	15	7
All Ages	M.	380	885	247	278	635	149	102	7	1364	1319
	F.	373	805	164	134	496	126	80	7	1113	1072
Grand Total		2443		823		1406		196		4868	

(b) NON-PULMONARY TUBERCULOSIS.

Age-groups	Sex	Bones and Joints (excluding Spine)		Spine		Abdomen		Other Organs		Peripheral Glands		Skin		Total	
		Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.
0-5 years	M.	20	13	9	—	12	5	2	1	22	33	2	—	67	52
	F.	12	6	3	—	6	13	1	—	20	30	—	1	42	50
5-15 years	M.	67	85	36	27	23	68	4	5	102	244	31	10	263	439
	F.	39	59	26	23	15	42	6	6	90	278	24	9	200	417
15-25 years	M.	57	95	31	23	9	41	2	11	55	150	34	17	188	337
	F.	53	65	16	23	12	31	1	4	83	203	41	24	206	350
25-35 years	M.	21	41	9	13	1	8	9	10	10	36	23	7	73	115
	F.	17	27	16	10	5	17	3	8	33	87	20	17	94	166
35-45 years	M.	8	22	9	7	—	5	6	6	5	17	9	7	37	64
	F.	9	15	7	7	1	5	4	5	10	36	24	10	55	78
45-55 years	M.	11	7	5	2	1	1	2	4	3	7	9	—	31	21
	F.	5	11	2	6	2	—	—	—	4	10	21	17	34	44
55-65 years	M.	11	3	2	—	—	—	—	2	1	1	2	3	16	9
	F.	3	7	2	4	—	1	—	—	1	8	15	4	21	24
65 & over	M.	10	2	—	1	—	—	—	1	—	1	2	—	12	5
	F.	9	2	—	1	—	1	—	—	1	2	7	2	17	8
All Ages	M.	205	268	101	73	46	128	25	40	198	489	112	44	687	1042
	F.	147	192	72	74	41	110	15	23	242	654	152	84	669	1137
Grand Total		812		320		325		103		1583		392		3535	

STATISTICS REQUIRED BY MINISTRY OF HEALTH.

By Memorandum 37/T, issued in September, 1925, the Ministry require certain information concerning the work done at tuberculosis dispensaries. These statistics, in the compulsory Table I. of the Memorandum, are given in Appendix IV. of this report.

TUBERCULOSIS DISPENSARIES AND STAFF.

Table A, here inserted, shows the dispensary areas with the populations, present staffs, the addresses of the 24 dispensaries at present in use, and the days and times on which they are open.

At the end of the report is also inserted a map of the Administrative County showing in colours the several dispensary areas, dispensaries, staff, etc.

TUBERCULOUS EX-SERVICEMEN.

Of the 8,403 patients under supervision of the dispensary staff at the end of 1928, 366 were discharged sailors, soldiers or airmen whose disease was held by the Ministry of Pensions to be attributable to or aggravated by service in the Great War and a pension granted for the disability. The number of these tuberculous pensioners is declining, falling from 1,017 at the end of 1922 to the figure of 366 mentioned above.

EVENING SESSIONS AT DISPENSARIES.

As in previous years, the evening sessions have been regularly held at most of the dispensaries for the convenience of patients who are at work during the day.

ARTIFICIAL LIGHT TREATMENT.

A report on the work done at the artificial light centres established at eleven of the dispensaries is given in Chapter III.

TUBERCULOSIS OFFICERS' VISITS TO SANATORIA AND HOSPITALS.

Periodical visits (mostly monthly) have continued to be paid by one or other of the consultant tuberculosis officers to the majority of the pulmonary hospitals, non-County sanatoria, and special hospitals treating County patients. These visits are of mutual help, inasmuch as they keep in touch the medical superintendent and the tuberculosis officer, who are able to confer on the patients' future treatment, the home circumstances, the provisions of the County scheme, and so on.

TABLE A.

DISPENSARY ORGANISATION.

AREAS, MEDICAL STAFF, NURSING STAFF,
DISPENSARIES, AND TIMES OF DISPENSARY
SESSIONS.

SUMMARY OF DISPENSARY WORK DONE BY TUBERCULOSIS
OFFICERS IN 1928, SHOWING COMPARISON WITH 1927.

VISITS BY TUBERCULOSIS OFFICERS TO PATIENTS' HOMES—							1927	1928
(a) Number of new persons (including new contacts) examined for diagnosis or expert opinion							1,387	1,564
(b) Number of re-examinations of "old" cases and "old" contacts—								
1. Respecting continued general supervision or dispensary treatment							3,907	3,954
2. Contacts respecting diagnosis							50	26
3. Other cases respecting diagnosis							161	175
4. For special forms of treatment or examinations resulting therefrom—								
Aspirations... ..							25	9
Adjustment of splints and surgical appliances ...							412	489
Lupus							56	37
Pneumothorax (induction and refills)							4	0
Tuberculin							0	4
Other forms							0	0
							<hr/>	<hr/>
							6,002	6,258
DISPENSARY ATTENDANCES BY PATIENTS—							<hr/>	<hr/>

DISPENSARY ATTENDANCES BY PATIENTS—

(a) Number of new persons (including new contacts) examined for diagnosis or expert opinion	...	...	...	...	4,056	4,244
(b) Number of re-examinations of "old" cases and "old" contacts—						
1. Respecting continued general supervision or dispensary treatment	...	...	...	...	15,951	15,279
2. Contacts respecting diagnosis	...	...	...	...	306	368
3. Other cases respecting diagnosis	...	...	...	...	2,189	2,254
4. For special forms of treatment or examinations resulting therefrom—						
Artificial light (Lancaster, Chorley, Preston, Nelson, Stacksteads, Ashton-under-Lyne, Radcliffe, Eccles, St. Helens, Ulverston and Fleetwood Dispensaries)					14,322	35,037
Aspirations	...	...	...	...	122	94
Adjustment of splints and surgical appliances	...	...	...	...	812	857
Lupus	...	...	...	...	340	350
Pneumothorax (induction and refills)	...	...	...	...	49	71
Tuberculin	...	...	...	...	15	189
Other forms	...	...	...	...	60	149
					<hr/> 38,222	<hr/> 58,892

X-RAY EXAMINATIONS MADE AT COUNTY DISPENSARIES AND INSTITUTIONS—

(a) Dispensary patients	5,239	6,191
(b) Institutional patients...	617	1,244
	<u>5,856</u>	<u>7,435</u>

EXAMINATIONS OF SPUTUM AT COUNTY DISPENSARIES	5,432	5,660
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NUMBER OF RECOMMENDATIONS BY TUBERCULOSIS OFFICERS—

1. Sanatorium or hospital treatment	2,105	1,924
2. Dispensary treatment or general supervision	...	...	...	...	12,632	11,885
3. Provision of special nourishment	...	...	...	...	1,545	1,520
4. Provision of surgical appliances	...	...	...	...	127	171
5. Loan of shelters	...	...	...	...	19	14
6. Diagnosis not confirmed—						
(a) Notified cases	...	...	...	...	153	211
(b) Non-notified cases	...	...	...	...	14	4
7. Cases written off the Register as refusing treatment	...	...	...	...	44	44
8. Pulmonary cases written off the Register as cured	...	...	...	...	444	349
9. Non-pulmonary cases written off the Register as cured	...	...	...	...	531	502

CARE COMMITTEE MEETINGS ATTENDED BY—	1927	1928
(a) Tuberculosis officers	87	95
(b) Tuberculosis health visitors	135	155
LECTURES AND ADDRESSES GIVEN ON TUBERCULOSIS	21	22
VISITS BY TUBERCULOSIS OFFICERS TO SANATORIA, PULMONARY AND SPECIAL HOSPITALS AND POOR LAW INFIRMARIES ...	233	221
SPECIAL VISITS BY TUBERCULOSIS OFFICERS (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.) ...	82	69
<hr/>		
VISITS BY DISPENSARY NURSES TO PATIENTS' HOMES—		
Routine visits	42,463	41,657
Actual nursing	932	878
Application of surgical dressings... ..	1,010	1,043
Adjustment of splints and surgical appliances	2,103	2,311
	<hr/>	<hr/>
	46,508	45,889
<hr/>		
PATIENTS' DISPENSARY ATTENDANCES FOR ATTENTION BY NURSES—		
Application of surgical dressings	1,907	2,784
Adjustment of splints and surgical appliances	100	291
	<hr/>	<hr/>
	2,007	3,075
	<hr/>	<hr/>

HOUSING.

The following table shows the housing conditions of all patients who have applied to the County Council for treatment and who were under treatment or supervision at the end of 1928. Whilst every effort is made to secure that infectious cases occupy a separate room, or at least a separate bed, no useful purpose is served by making the same insistence in regard to patients with the disease quiescent or arrested. The non-pulmonary cases are given separately, and only a very small number indeed may be considered infectious.

TABLE 12.—*Housing Statistics of 8,360 County Patients.*

		Patients Occupying Separate Bedroom.	Patients Occupying Separate Bed, but not Separate Bedroom.	Patients not occupy- ing a Separate Bed.
Number of Pulmonary cases <i>considered infectious or con- tagious.</i>	Under 15 years	9	11	2*
	15 and over ...	1,215	471	126*
Number of Pulmonary cases <i>not considered infectious or contagious.</i>	Under 15 years	78	203	201
	15 and over ...	940	545	1,042
Number of Non-Pulmonary cases.	Under 15 years	189	632	701
	15 and over ...	545	426	1,024
TOTAL ...	Under 15 years	276	846	904
	15 and over ...	2,700	1,442	2,192

* 33 of these 128 cases were isolated in sanatoria or pulmonary hospitals at the end of 1928. (See succeeding paragraph).

It will be seen that 128 patients (including two children) suffering from pulmonary tuberculosis and considered to be infectious were not occupying a separate bed when at home at the time the census of the housing conditions was made at the end of 1928. Of this number, 33 were away from home and isolated in pulmonary hospitals or sanatoria, leaving (from a total of 1,834 infectious cases) 95, or 5·1 per cent., infectious cases at home not occupying a separate bed. The dispensary staff do not relax their efforts to secure isolation, or to improve the sleeping accommodation, and the position of these 95 cases in August, 1929, may be summarised as follows :—(1) arrangements made to occupy a separate room, 9, separate bed, 8 ; (2) admitted to pulmonary hospitals for isolation, 4 ; (3) sputum ceased to be positive for twelve months or more, 58 ; (4) died or removed from district, 5 ; unable to have a separate bed and unable or unwilling to enter a pulmonary hospital, 4 ; and (6) refused to isolate at home and unwilling to enter a pulmonary hospital 7.

Appendix III. of this Report shows the housing conditions of the patients in each dispensary area.

EXAMINATION OF HOUSE CONTACTS.

By the systematic examination of house contacts, particularly among those of patients with positive sputum, many early or unsuspected cases of tuberculosis are detected. Owing to indifference or unwillingness, considerable difficulty (which, however, is gradually being overcome) is experienced in persuading contacts to come to the dispensary for examination, or even to submit themselves for examination at all, and it follows, therefore, that the tuberculosis officer has to see a large proportion of them at their homes.

TABLE 13.—*Contacts* examined during 1928.*

	Diagnosed as Tuberculous.		Doubtful.†	Non-Tuberculous.	Total.
	Pulmonary.	Non-pulmonary.			
Examined at Home ...	7	4	4	346	361
Examined at Dispensary	47	23	40	849	959
Total ...	54	27	44	1195	1320
	81				

* In accordance with the direction of the Ministry of Health in Memorandum 121/T, cases are entered as contacts only if the cause of their being examined is the fact that they have recently been, or still are, living in contact with some dispensary patient or other notified case ; many persons suffering, or suspected to be suffering, from tuberculosis who attend at the dispensary of their own accord, or who are referred by a private medical practitioner, may give a history of previous contact with a known case of tuberculosis, but this does not render them "contacts."

† In the 44 doubtful cases the diagnosis of tuberculosis had not been made within one month of the first examination, and they are so classified as doubtful in accordance with the Ministry of Health's Memorandum 37/T.

Out of the 1,320 new contacts examined during the year, 81 were ultimately diagnosed as definite cases of tuberculosis—pulmonary 54 and non-pulmonary 27. These cases are equal to 61·36 per 1,000 of contacts examined, as against the proportion of 4·63 tuberculous persons per 1,000 of the population known to the dispensary staff in the County. Thus, the examination of contacts revealed many more tuberculous cases proportionately than would be found in the ordinary population.

It may be stated that of the 54 pulmonary cases, 27 per cent. were found with a positive sputum.

PROVISION OF BEDSTEADS, MATTRESSES, AND NURSING REQUISITES.

In each County dispensary area a small stock of bedsteads, mattresses (but not bedding), and nursing requisites belonging to the County Council is available for loan to necessitous patients undergoing home treatment.

The table following shows the number of these articles owned by the County Council, and also the number of patients who have been granted the use of the articles :—

TABLE 14.

Articles.	Quantity owned by County Council. 31/12/28.	Number of patients to whom articles have been loaned during 1928.	Articles in possession of patients on 31/12/28.
Bedsteads	191	55	159
Mattresses	193	58	161
Mattress Covers	151	34	116
Air Beds	8	10	4
Air Cushions	157	195	94
Air Pillows	1	1	—
Air Pumps	1	—	—
Bath Chairs... ..	6	3	4
Bed Cradles	6	2	—
Bed Pans	104	91	46
Bed Rests	56	53	32
Bed Slippers	73	25	11
Extension Apparatus	12	6	1
Fracture Boards	2 sets	—	—
Ground Sheets	48	5	20
Hot Water Bottles, Rubber	8	2	2
Ice Bags	2	1	—
Rest Chairs	4	2	1
Rubber Sheeting	19 yds.	2	1½ yds.
Rubber Sheets	11	4	2
Spinal Boxes	22	5	1
Spinal Carriages	17	8	5
Splints	16	6	3
Urinals... ..	101	40	42
Water Beds... ..	15	3	2

The bedsteads and mattresses, which are held at the disposal of the consultant tuberculosis officers, have proved of valuable assistance in securing the better sleeping accommodation at home of persons with pulmonary tuberculosis considered to be infectious or contagious.

X-RAY WORK.

X-ray installations for use by the tuberculosis officers for the examination of patients, in order to assist in the diagnosis of doubtful and difficult cases of tuberculosis—both pulmonary and non-pulmonary forms—have been provided as follows by the County Council in each dispensary area, except Area 2, where a special arrangement exists :—

Area 1.—Lancaster Chief Dispensary. (New apparatus being installed in September, 1929).

Area 2.—Darwen Branch Dispensary (by arrangement with local Radiological Society), and also at the Withnell Pulmonary Hospital for in-patients and occasional dispensary area cases.

Area 3.—Ashton-under-Lyne Chief Dispensary (New apparatus provided in July, 1928).

Area 4.—Eccles Branch Dispensary, and also at the Peel Hall Pulmonary Hospital for in-patients and occasional dispensary area patients (Plant installed at Peel Hall, August, 1928).

Area 5.—Seaforth Chief Dispensary, and also at the Rufford Pulmonary Hospital for in-patients and occasional dispensary area cases.

Furness.—High Carley Sanatorium, for the dispensary sub-area and sanatorium patients.

Fylde.—Elswick Sanatorium, for the dispensary sub-area and sanatorium patients.

With each plant there is a Potter-Bucky diaphragm to enable clearer skiagrams to be taken of deep-seated bones.

The policy of placing an apparatus in each dispensary area for use by the tuberculosis officer himself is, from experience, found to be the best method, because the tuberculosis officer, with his knowledge of the patient's history and clinical signs, is most fitted to make a correct interpretation of the skiagrams. Cases are from time to time discovered by the tuberculosis officers which, but for the help afforded by X-ray examinations, would have been sent to an institution for the treatment of non-pulmonary tuberculosis. A few of such cases are alone sufficient to pay for the original cost of an X-ray apparatus. The various installations are also of use in the control and continuation of artificial pneumothorax treatment commenced during a patient's stay at a sanatorium or hospital.

The following statement shows the X-ray work done during 1928, compared with previous years :—

TABLE 15.

	1922.	1923.	1924.	1925.	1926.	1927.	1928.
At County Dispensaries and Institutions :							
(a) Dispensary patients ...	771	2159	4045	3899	4440	5239	6191
(b) Institutional patients...	16	193	160	205	351	617	1244
At Manchester	192	82	24	11	—	—	—
Total	979	2434	4229	4115	4791	5856	7435

EXAMINATION OF SPUTUM.

As an aid to diagnosis, arrangements are in existence for the examination, free of cost, of specimens of sputum sent by medical attendants. At each chief dispensary a small laboratory is installed for this work ; whilst, in addition, an arrangement exists with the Director of the Public Health Laboratory, Manchester, for the examination of specimens including inoculation tests.

The following statement shows the results of the examinations made in 1928, compared with the previous year :—

	At Dispensary Laboratories.		At Public Health Laboratory, Manchester.	
	1927.	1928.	1927.	1928.
Positive (<i>i.e.</i> , tubercle bacilli present) ...	1,060	1,141	182	153
Negative (<i>i.e.</i> , tubercle bacilli not found).	4,372	4,519	399	341
Total	5,432	5,660	581	494

PROVISION OF SPECIAL NOURISHMENT.

The provision of special nourishment is, in suitable cases, of great value to a patient in helping him to recover from the disease. A large proportion of cases have been allowed special nourishment pending removal to an institution, and these grants have undoubtedly enabled patients to commence their institutional treatment in a more favourable state than they would have been without them. The effect may, on the whole, be said to have shortened the period of institutional treatment for many patients.

During the year, 1,520 grants of special nourishment (subject to certain conditions, published in the 1924 report) for varying periods were made to 678 individual patients as part of their medical treatment. The figures in 1927 were 1,545 grants to 687 patients.

SPECIAL SURGICAL APPLIANCES.

During 1928 the following surgical appliances were supplied to patients on the recommendation of the tuberculosis officers :—

Angular splint, 2 ; ankle splint, 1 ; back splint, 5 ; caliper splint, 11 ; celluloid splint, 3 ; elbow splint, 1 ; foot splint, 6 ; hand splint, 1 ; Thomas' hip splint, 13 ; Thomas' knee splint, 9 ; abduction frame, 4 ; spinal frame, 3 ; spinal jacket, 2 ; spinal brace, 4 ; spinal support, 29 ; abdominal belt, 8 ; artificial limb, 2 ; crutches, 34 pairs ; pattens, 22 ; poroplastic jacket, 2 ; surgical boot, 14 ; leather belt, 2 ; Taylor's brace, 2 ; cuirass 2 ; surgical collar, 3 ; truss, 1 ; "Rentoul" headpiece, 1.

SLEEPING SHELTERS.

There were, at the end of the year, 48 shelters in use by patients at their homes (including six new shelters purchased early in 1928). I have to thank medical officers of health and sanitary inspectors throughout the County for much valuable help in connection with the removal, disinfection, and re-erection of shelters used by County patients.

The loan of sleeping shelters is made to suitable cases on the recommendation of the tuberculosis officer, after careful consideration of the following points : (1) the condition of the patient and his ability to use the shelter properly ; (2) the position of the shelter ; (3) the home conditions of the patient ; and (4) the means of communication with the nearest inhabited building in case of a sudden relapse.

The number of persons in 1928 who were allowed the use of the shelters was 59.

VII.—REPORTS FROM DISPENSARY AREAS.

In this chapter there is given in respect of each dispensary area a summary of the work done by the dispensary staff, the housing conditions of patients, and a report of the consultant tuberculosis officer.

AREA No. 1.

Lancaster, Chorley, Preston Rural, and Lytham St. Annes Districts.

(Estimated population, 260,601.)

Consultant Tuberculosis Officer ...	...	Dr. A. D. BRUNWIN.
Assistant Tuberculosis Officer ...	...	Dr. G. H. LEIGH.

Dr. Brunwin sends the following report :—

An increasingly large number of cases attending the dispensaries appear to consist of patients with enlarged glands of the neck, and quite a fair proportion of these glands are not considered to be tubercular, but to be a chronic septic condition secondary to infection of the nose, teeth, throat, or scalp.

Another striking feature is the attendance of a number of patients at the dispensaries over a period of four to eight years who have a persistently positive sputum, often with one or more cavities in the lungs, but who do regular and sometimes laborious work. In many cases they appear as well as they did eight years ago ; indeed, they seem to feel little inconvenience from their complaint. The difficulty of convincing such patients that they should consider themselves infectious is obvious, and it would seem unkind to suggest to them, much less to enforce it, that they should be permanently segregated from the rest of the community.

The following is a summary of the work done in the area :—

Number of tuberculous cases under supervision on 31st December, 1928					
(Definitely tuberculous, 1088 ; doubtful, 0.)	...	...	...	...	1088

Examinations by Tuberculosis Officer at—	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of “ <i>old</i> ” cases and “ <i>old</i> ” <i>contacts</i> .
Patients' homes	257	1580
Lancaster Chief Dispensary	115	524
Chorley Branch Dispensary	159	879
Preston Branch Dispensary	92	479
	366	1882

Attendances of patients at dispensaries for artificial light treatment—

Lancaster Dispensary	625	} 5109
Chorley Dispensary	2917	
Preston Dispensary	1567	

Care committee meetings attended by—

(a) Tuberculosis officers	24
(b) Tuberculosis health visitors	33

Visits by tuberculosis officers to sanatoria, pulmonary and special hospitals... 35

Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.) 2

Visits by dispensary nurses to patients' homes—

Routine visits	3712	} 3718
Actual nursing	3	
Application of surgical dressings	3	

Sanitary defects reported to the local medical officers of health 17

Sanitary defects which after notification were remedied 8

Disinfections carried out by local sanitary authorities 231

Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment 478

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 1 :—Lancaster (15th July, 1925), Chorley (14th October, 1926), and Preston (29th November, 1927).

The following Table 16 shows the results for patients treated at these dispensary centres during 1928 :—

Form of tuberculosis or part of body affected.	No. of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons. *	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
	(a)	<i>Lancaster Centre</i>					
Skin (lupus & scrofuloderma)	8	3	1	—	—	—	4
Adenitis with abscess formation and skin involvement ...	1	—	—	—	—	1	—
Adenitis without softening	4	2	—	1	—	1	—
Bones, joints and spine	5	—	1	—	—	3	1
Abdomen	3	2	—	—	—	—	1
Other non-pulmonary conditions	3	2	—	—	—	1	—
Pulmonary tuberculosis Bronchial glands ...	3	2	—	—	—	1	—
TOTAL	27	11	2	1	—	7	6

Form of tuberculosis or part of body affected.	Number of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons. *	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
	(b)	<i>Chorley</i>	<i>Centre</i>				
Skin (lupus & scrofuloderma) ...	13	1	1	—	—	1	10
Adenitis with abscess formation and skin involvement ...	29	13	3	1	—	4	8
Adenitis without softening ...	23	12	2	—	—	2	7
Bones, joints and spine	6	2	1	—	—	1	2
Abdomen ...	6	4	1	—	1	—	—
Other non-pulmonary conditions ...	6	1	—	—	—	1	4
TOTAL ...	83	33	8	1	1	9	31
	(c)	<i>Preston</i>	<i>Centre</i>				
Skin (lupus & scrofuloderma) ...	13	7	—	—	—	—	6
Adenitis with abscess formation and skin involvement ...	15	8	—	—	—	3	4
Adenitis without softening ...	15	9	1	—	—	3	2
Bones, joints and spine	9	2	—	1	—	1	5
Abdomen ...	2	1	—	—	—	—	1
Other non-pulmonary conditions ...	1	—	—	—	—	—	1
Pulmonary tuberculosis Sputum negative ...	2	—	—	—	—	2	—
TOTAL ...	57	27	1	1	—	9	19

* Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (e.g., removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

There are now three centres in Area No. 1, at Lancaster, Chorley, and Preston; the numbers attending at the end of the year being 6, 31, and 19 respectively; indicating and coinciding with the greater prevalence of surgical tuberculosis in the Chorley area than around Lancaster (Preston Rural District being intermediate). The difference was noticed before the introduction of light treatment, and cannot be explained by the difference of urban and rural communities, as Lancaster and Morecambe contain a considerable population. The

latter towns are, however, separated from any other town by 20 miles of open country, and Lancaster is only four miles from the sea, so possibly the greater purity of the air, and the much greater preponderance of natural light in a less smoke-laden atmosphere, increase the body resistance to non-pulmonary forms of the disease.

At the three centres Siemens' iron-cored carbons have mostly been used. The strength of these, according to tests made, is 25 per cent. of the ordinary grade "C" carbons (as used at Ashton-under-Lyne, St. Helens and other centres) and, therefore, the exposures given in my area are necessarily longer in comparison.

Lancaster Dispensary. The light department has been served for 1928 by one "Sunrae" 30-ampere lamp, a "Hanovia" mercury vapour lamp, and a Kromayer lamp for local treatment.

The number of cases needing treatment has declined to a considerable extent, so that the carbon arc lamp has never been used to its full capacity.

Non-pulmonary tuberculosis is, in any case, comparatively rare in the Lancaster district, but the falling off in numbers is due to at least three causes: (1) a great many of the accumulation of cases treated in the previous years have become quiescent and apparently cured, the new cases having been, happily, insufficient to replace them; (2) owing to experience of the limitations of light treatment, more conservatism is exercised in the selection of cases; (3) the closure of Luneside Pulmonary Hospital accounts for a small shrinkage of "combined" cases.

Iron-impregnated carbons are always used, and exposures up to half-an-hour back and half-an-hour front at 30 inches distance are given.

Most of the cases consist of enlarged cervical glands, lupus, and discharging sinuses.

No severe reactions have occurred. Pigmentation is at most only moderate, and no approximation to the deep pigmentation of the Finsen method ever takes place.

The mercury vapour lamp is used only for certain children, and the arc lamp is found generally preferable. The Kromayer lamp is used only for the local treatment of lupus.

Preston Dispensary. The four-electrode "Alpine Sun" lamp (previously employed at Lancaster Dispensary) has been in constant use, and, owing to the fact that about four amperes more from the public supply have been allowed, appears to have given improved results; these results are quite as good as those obtained with the "Sunrae" lamp. The advantages of the "Sunrae" lamp are that

more patients can be treated at the same time, and it gives less trouble because its action is automatic.

Exposures are given of half-an-hour back and half-an-hour front at 27 inches (equivalent to one hour at 36 inches).

Iron-cored carbons were used at first, but carbons containing iron, boron, and tungsten are now employed and appear to give better results.

The tungsten lamp is now rarely used.

The Kromayer lamp is used for all local lesions, chiefly for lupus, but also for discharging sinuses.

The number of patients has fallen off considerably, and this is due mainly to the fact that cases become quiescent and apparently cured more rapidly than new cases occur.

Chorley Dispensary. The original four-electrode "Alpine Sun" lamp is still in use, and during the year two Jesionek lamps and a Kromayer lamp were installed.

The following notes have been compiled by Dr. Leigh who supervises the treatment at this centre :—

The electric supply is alternating current, 230 volts. The carbon arc lamp has four pairs of carbons in series, each burning about 22 amperes at about 50 volts. Siemens' "A" electrodes have been used, and so far carbons impregnated with various metals have not been experimented with.

The mercury vapour lamps are of the enclosed type; they have been adapted for alternating current, and each takes about 5 amperes.

In the case of the carbon arc lamp, the front of the body is irradiated during the first half of the treatment, and the back during the remainder, but with the mercury vapour lamp, after the preliminary treatments, the back and front of the body are irradiated simultaneously—the patient sitting between the two lamps.

The distance from the lamp has been 36 inches for the carbon arc lamp reduced to 27 inches when the maximum period was reached, and 36 inches with the mercury vapour lamps.

After the installation of the mercury vapour lamps in August, it was possible to prolong the length of the treatment with the carbon arc which was then reserved for the more severe cases, and since then, pigmentation, which was formerly absent or only slight, has made its appearance. Some of the patients have been pigmented with fair intensity.

Many of the cases were of old standing; three at least had received previously X-ray treatment with the formation of X-ray sears, and in two of the cases small X-ray ulcers. All the cases but one showed improvement; in some progress was marked. The Kromayer lamp has been of considerable help in this class of case. The patient who did not improve had very bad home conditions, and on this account was

sent away as an in-patient to a special hospital. Another case had to cease treatment because of his mental condition.

A large proportion of the cases suffer from tuberculosis of the cervical glands, and these may be divided into three classes :—fairly firm glands, glands with evidence of softening, and glands with small sinuses or slight skin involvement.

In most of these cases, good results were obtained, peri-glandular infiltration became less, the soft glands became firm, and often hardly palpable. Glands that were hard at the commencement, as a rule, only decreased slightly in size. The sinuses healed. Two cases with very small gland lesions and slight seab formation proved very intractable. In three other cases the glands did not harden and went on to abscess formation, and other methods of treatment had to be resorted to.

A case of spinal disease complicated by tuberculous pleurisy did not appear to benefit. A case of tuberculosis in the scar of a tracheotomy wound showed rapid improvement. In a case of tenosynovitis, the inflammation was much reduced after prolonged treatment, and the disease rendered quiescent. A patient with a small abscess, who had previously had a tuberculous lesion of another part of the body, developed an ulcer while under treatment. It became evident that the condition was due to specific disease and not to tuberculosis, and after appropriate treatment the ulcer healed quickly.

Of three patients who died subsequent to light treatment, two died after operations, and the other was a hopeless case of tuberculosis of the abdomen who was too ill for the treatment to be applied efficiently.

AREA NO. 2.

Accrington, Bacup, Burnley Rural, Darwen, Nelson, and Rawtenstall Districts.

(Estimated population, 354,883.)

Consultant Tuberculosis Officer ... Dr. B. MACPHEE.

Assistant Tuberculosis Officers ... Dr. S. C. ADAM.
Dr. F. C. S. BRADBURY.

Dr. MacPhee reports :—

We are still carrying on part of the work under difficulties, in that we have not secured suitable premises more central for the area. I refer particularly to premises that would be suitable to accommodate X-ray and ultra-violet radiation installations.

The X-ray work for the area is still carried out at the dispensary, 20, Railway Road, Darwen, and during the year 717 skiagrams were

taken. The use of X-rays in the diagnosis of tuberculosis has again proved of very great assistance.

Examinations of sputum are carried out in the laboratory at the Accrington Chief Dispensary. During the year 1,157 specimens were examined with the following results :—Positive 194, negative 963. In a number of special cases giving rise to difficulties in diagnosis specimens of sputum were sent to Manchester for guinea-pig inoculation tests.

Monthly visits have been made to Eastby Sanatorium, and occasional visits have also been made by me to the Moorlands Infirmary, Rawtenstall, and the Workhouse Infirmaries at Burnley and Clitheroe, in order to see patients in consultation with the medical superintendents of the respective institutions.

The Care Committee in the Bacup and Rawtenstall area, and that in the Bromley Cross district have continued their useful work during the year.

Assistance to necessitous cases in those districts which do not possess a voluntary Care Committee has again been made possible through the medium of the County Care Fund, and during the year 60 individual patients or their dependants were assisted at a cost of £243 8s. 4d.

The following is a summary of the work done in the area :—

Number of tuberculous cases under supervision on 31st December, 1928
(Definitely tuberculous, 1054 ; doubtful, 4.) 1058

Examinations by Tuberculosis Officer at—					Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of “ <i>old</i> ” cases and “ <i>old</i> ” <i>contacts.</i>
Patients' homes	...	...	...	...	243	294
Accrington Chief Dispensary	...	...	...	...	250	647
Darwen Branch Dispensary	...	...	...	...	70	215
Nelson Branch Dispensary...	...	...	...	...	172	454
Stacksteads Branch Dispensary	...	...	...	...	101	347
					593	1663

Attendances of patients at dispensaries for artificial light treatment—

Nelson Dispensary	...	...	...	...	...	...	159	} 3864
Stacksteads Dispensary	...	...	...	...	...	...	3705	
Lectures or addresses given	...	...	...	...	...	...	...	4
Visits by tuberculosis officers to sanatoria, pulmonary and special hospitals and poor law infirmaries	...	...	...	...	...	...	...	32
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	...	...	...	...	...	...	...	17

Visits by dispensary nurses to patients' homes—

Routine visits	6618	} 7270
Actual nursing	212	
Application of surgical dressings	117	
Adjustment of splints and surgical appliances	323	

Patients' dispensary attendances for attention by nurses—

Application of surgical dressings	920	} 1003
Adjustment of splints and surgical appliances	83	

Sanitary defects reported to the local medical officers of health 31

Sanitary defects which after notification were remedied 28

Disinfections carried out by local sanitary authorities—

Rooms, 318, Articles, 983	1301
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Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment 660

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 2 :—Stacksteads (9th January, 1928) and Nelson (20th November, 1928).

The following Table 17 shows the results for patients treated at the Stacksteads Centre during 1928 :—

(a) Stacksteads Centre.

Form of tuberculosis or part of body affected.	No. of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons *	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
Skin (lupus & scrofuloderma)	18	—	—	—	—	1	17
Adenitis with abscess formation and skin involvement ...	8	1	—	—	—	1	6
Adenitis without softening	16	9	—	1	—	2	4
Bones, joints and spine	13	2	—	—	—	2	9
Abdomen	2	—	—	—	—	1	1
Other non-pulmonary conditions	7	2	—	—	—	2	3
TOTAL	64	14	—	1	—	9	40

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (e.g. removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

(b) *Nelson Centre.*

As this centre was opened only five weeks before the end of the year, there are no results to record. On December 31st, there were 24 cases under treatment.

Ultra-violet radiation treatment was commenced at the Stacksteads Dispensary in the beginning of the year (1928) with two types of lamps—Jesionek and Kromayer. Two of the former type were used to economise in time. The Kromayer lamp was used to supplement the Jesionek lamps in the treatment of lupus.

The following types of cases have been treated throughout the year:—lupus, tuberculosis of glands (without suppuration), tuberculosis of glands (with suppuration and discharging sinuses and, in some cases, skin involvement), tuberculosis of bone, abdomen, etc.

The most marked success was seen in the cases of lupus, and of chronic discharging sinuses with consequent debility in the patient. Some of the cases of lupus treated were of very old standing, and had had years of treatment, both at home by their own doctors, and at a special hospital for skin diseases, without any material improvement.

Almost without exception, every case has shown marked improvement, and, in fourteen cases, we have been able to discharge them as “cured.”

In very few cases has there been any marked increase in weight, although the general feeling of well-being in the patient has been increased.

Generally speaking, patients have attended twice a week for ultra-violet radiation treatment, and up to 25 minutes exposure has been given at a time. With very few exceptions, we were able to increase the time of exposure gradually to the limit of 25 minutes back and 25 minutes front.

Very little pigmentation was noticed in any of the cases, and in a large number, none at all. Slight erythema was obtained in most of the cases, but this disappeared after a day or two.

The opening of the light centre at the Nelson Branch Dispensary in November last, with two carbon arc lamps, one Kromayer mercury vapour lamp, and one Jesionek mercury vapour lamp, will also, I hope, prove a valuable addition to the facilities for treatment in that district.

AREA No. 3.

Ashton-under-Lyne, Bury Rural, Chadderton, Crompton, Littleborough, Middleton, Mossley, &c., Districts.

(Estimated population, 373,152.)

Consultant Tuberculosis Officer . . Dr. G. FLETCHER.

Assistant Tuberculosis Officers . . Dr. C. BERRY.
Dr. J. CATHCART.

Dr. Fletcher reports :—

During the year the work of the dispensary under the late Dr. Stewart was carried on much on the same lines as formerly.

The Care Committees at Ashton-under-Lyne and in the Radcliffe area continued to give real and timely assistance to many patients whose circumstances were known to be straitened.

In other districts where no voluntary Care Committees exist, the County Care Fund has proved of the greatest service in helping necessitous patients. During the year 42 such cases were assisted in this area.

Co-operation with the general practitioners in the district continued to be very satisfactory.

The X-ray work is carried out at Ashton-under-Lyne Dispensary, and during the year 2,259 skiagrams were taken, as compared with 1,792 in 1927. The value of such work in dealing with cases of pulmonary tuberculosis is now beyond dispute.

Lectures were given by the late Dr. Stewart to the Oldham Medical Society, the North-Western Tuberculosis Society, and to the Ashton-under-Lyne and Rochdale branches of the British Medical Association. He also took part in the health weeks at Ashton-under-Lyne and Middleton, and gave an address to the nurses at Stepping Hill Hospital. To the *British Journal of Tuberculosis* he contributed an article on silicosis and tuberculosis which appeared in the January number of 1929.

At the laboratory at Ashton-under-Lyne Dispensary, 1,395 specimens of sputum, etc., were examined for tubercle bacilli during the year. Of these, 368 were positive and 1,027 were negative.

For the purpose of consulting with the medical superintendents, monthly visits have been made to the Aitken Sanatorium, and to Chadderton, Wolstenholme Hall, Marland, and Westhulme Pulmonary Hospitals, and six visits were made to Barrowmore Hall during the year.

I have to thank Dr. Berry and the nursing and clerical staffs of this area for the loyal help, willingly given me, since the lamented death on the 20th February, 1929, of Dr. Stewart, who had so long and so successfully been in charge of the work in this area.

The following is a summary of the work done in the area :—

Number of tuberculous cases under supervision on 31st December, 1928
(Definitely tuberculous, 1816 ; doubtful, 0.) 1816

Examinations by Tuberculosis Officer at—					Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of “ <i>old</i> ” cases and “ <i>old</i> ” <i>contacts</i> .
Patients' homes	...	...	...	...	166	356
Ashton-under-Lyne Chief Dispensary	...	...	...	...	641	2127
*Bury Branch Dispensary	...	...	...	...	47	179
Middleton Branch Dispensary	...	...	...	...	84	389
Mossley Branch Dispensary	...	...	...	...	25	201
Oldham Branch Dispensary	...	...	...	...	338	1241
Radcliffe Branch Dispensary	...	...	...	...	122	599
Rochdale Branch Dispensary	...	...	...	...	155	674
					1412	5410

* Transferred to 41, Darbyshire Street, Radcliffe, 2nd May, 1928.

Attendances of patients at dispensaries for artificial light treatment—

Ashton-under-Lyne Dispensary	11,094	} 12,275
Radcliffe Dispensary	1,181	

Care committee meetings attended by—

(a) Tuberculosis officers	10
(b) Tuberculosis health visitors	10

Lectures or addresses given	8
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Visits by tuberculosis officers to sanatoria, pulmonary and special hospitals and poor law infirmaries	79
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Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	9
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Visits by dispensary nurses to patients' homes—

Routine visits	9622	} 10880
Actual nursing	...	...	...	...	...	...	430
Application of surgical dressings	...	...	...	...	...	...	145
Adjustment of splints and surgical appliances	...	...	...	...	...	...	683

Patients' dispensary attendances for attention by nurses—

Application of surgical dressings	149	} 229
Adjustment of splints and surgical appliances	80	

Sanitary defects reported to the local medical officers of health	131
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Sanitary defects which after notification were remedied	57
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Disinfections carried out by local sanitary authorities	572
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Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment	920
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Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 3 : Ashton-under-Lyne (11th September, 1925), and Radcliffe (20th July, 1928). Particulars of lamp equipment at these centres are given on page 31 in the chapter on artificial light treatment.

The following Table 18 shows the results for patients treated at these centres during 1928 :—

Form of tuberculosis or part of body affected.	No. of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons. *	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
	(a)	<i>Ashton - under - Lyne Centre.</i>					
Skin (lupus & scrofuloderma)	36	4	—	—	—	3	29
Adenitis with abscess formation and skin involvement ...	39	16	—	—	—	1	22
Adenitis without softening	31	6	—	—	—	5	20
Bones, joints and spine	34	7	—	—	—	9	18
Abdomen	9	5	—	—	—	1	3
Other non-pulmonary conditions	3	—	—	—	—	—	3
Pulmonary tuberculosis Sputum positive ...	1	—	—	—	—	1	—
Bronehial Glands ...	2	2	—	—	—	—	—
Pleura	3	1	—	1	—	—	1
TOTAL... ..	158	41	—	1	—	20	96

(b) *Radcliffe Centre (Opened July, 1928).*

Skin (lupus & scrofuloderma)	8	—	—	—	—	1	7
Adenitis with abscess formation and skin involvement ...	4	—	—	—	—	—	4
Adenitis without softening	4	1	—	—	—	—	3
Bones, joints and spine	5	2	—	—	—	—	3
Abdomen	2	—	—	—	—	—	2
Other non-pulmonary conditions	2	—	—	—	—	—	2
TOTAL	25	3	—	—	—	1	21

* Includes: (1) any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (e.g. removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

Ashton-under-Lyne Centre. As in former years, most of the patients selected for light treatment have been cases of so-called surgical tuberculosis, including tuberculosis of the skin, glands, peritoneum, and bones. Active pulmonary disease has been regarded as a contra-indication to this form of treatment, but where such disease is confined to the pleura or to the bronchial glands, light therapy has given satisfactory results without risk to the patient. A few combined cases in which the lung disease was more or less quiescent have been given local exposures for the non-pulmonary lesion, and have derived distinct benefit. Some of the major forms of surgical tuberculosis cannot be satisfactorily treated at the dispensary. When possible, these have been given a course of treatment pending admission to general or orthopædic institutions.

Patients, in whom the disease has been arrested or cured, attend the dispensary for observation, and in some cases, a further course of light is prescribed in order to maintain the general health, and prevent recurrence. Thus 144 quiescent and apparently cured cases attended during the year for observation, and in addition 39 convalescent and quiescent cases received a prophylactic course of light.

Eight cases, in which artificial light had succeeded in arresting the disease, showed signs of recurrence; of these, three were cases of lupus, four were cases of adenitis, and one was a case of synovitis. In every instance the disease responded to further treatment by light.

The results obtained during the year serve to confirm the belief that light treatment, properly administered, is a valuable and safe remedy in certain forms of tuberculosis.

Radcliffe Centre.—The equipment at this centre is similar to that of the Ashton Dispensary, and similar types of cases are under treatment.

The Radcliffe and Ashton Dispensaries are staffed by the same nurses.

The fact that light treatment is now available at Radcliffe has relieved the pressure at Ashton. The cases transferred from the latter centre have made satisfactory progress.

In addition to the patients under treatment, two cases have attended the dispensary for prophylactic courses of light, and two quiescent and apparently cured cases remain under observation.

AREA No. 4.

Leigh, Eccles, Farnworth, Stretford, and Swinton Districts.

(Estimated population, 343,716.)

Consultant Tuberculosis Officer . . Dr. G. JESSEL.

Assistant Tuberculosis Officers . . Dr. A. B. JAMIESON.
Dr. H. J. VILLIERS.

Dr. Jessel reports :—

I again have pleasure in acknowledging the manner in which my colleagues in the area have assisted me. Certain special interesting features of the work merit brief allusion.

Diagnosis. The number of new cases examined, excluding contacts, was 818, and of these 691, or 84 per cent., were specially referred to me by their medical attendants, the remainder being examined as a result of notification. The majority of the new cases were able to attend a dispensary for examination, but 174 were unfit to do so and were visited at home. In 148, or 85 per cent., a personal consultation took place at the bedside with the patient's doctor. There is no doubt that these personal consultations, though necessitating a certain amount of trouble in arranging and keeping appointments, are of the greatest value to all concerned.

In this area practically every new tuberculous patient has for some years been glad to take advantage of the special facilities for diagnosis and treatment available under the County scheme.

Careful and repeated clinical examinations combined with weight and temperature records are often sufficient to enable a correct diagnosis to be made. They are supplemented and reinforced as a routine measure by (a) sputum examinations, and (b) X-ray examinations.

(a) *Sputum Examinations.* At the Eccles Dispensary 1,945 specimens were examined, 382 being found to contain tubercle bacilli. In many of these, in whose sputum no tubercle bacilli were discovered at first, it was possible by other means to diagnose tuberculosis, and in several instances the diagnosis was confirmed by the finding of tubercle bacilli in the sputum at a later date. This point is of special interest in connection with specimens sent by medical practitioners, which numbered 315, tubercle bacilli being found in 54. A full investigation of the patient is thus to be preferred to a single examination of the sputum.

(b) *X-ray Examinations.* During the year 804 skiagrams were taken ; most of the new cases were examined and a number of

old cases re-examined for comparative purposes. A series of interesting skiagrams has gradually been built up illustrating various manifestations of tuberculosis in different parts of the body, together with a number of non-tuberculous conditions simulating the former disease.

Treatment. As in former years special forms of treatment have been given as opportunity afforded. Under this heading may be included aspirations of abscesses, application of extension apparatus and splints or plasters in joint diseases, and artificial pneumothorax refills in suitable pulmonary cases. Special attention has also been paid to skin cases. The routine treatment is under the care of the patients' own doctors, but the dispensary nurses assist in the routine supervision of home treatment and the nursing and dressing of such cases as need their help. Patients with active disease are periodically examined by one of the tuberculosis officers, and opportunity is taken to exchange views with their doctors, Form G.P. 36 being occasionally used in the case of insured persons.

Care Work. The Care Committees of Leigh, Farnworth, and Westhoughton, together with the tuberculosis sections of the Eccles and Stretford Guilds of Help, assisted 127 patients during the year at a cost of £357 10s. 1d., while 14 other patients were helped at a cost of £24 6s. 9d. from the County Care Fund, available in districts where no voluntary care organisations exist.

Contacts. The examination of 455 selected contacts resulted in 13 definite cases being found.

Health Weeks. In connection with the health weeks, lectures were given by me at Farnworth and Walkden and were well attended. As a feature of the health week at Little Hulton, the public were enabled to visit and inspect the Peel Hall Pulmonary Hospital.

The following is a summary of the work done in the area :—

Number of tuberculous cases under supervision on 31st December, 1928						
(Definitely tuberculous, 1700 ; doubtful, 0.)					... ..	1700
Examination by Tuberculosis Officer at—					Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of " <i>old</i> " cases and " <i>old</i> " contacts.
Patients' homes	...	...	...	...	475	1212
Leigh Chief Dispensary	...	...	...	...	246	1344
Eccles Branch Dispensary	...	...	...	...	131	699
Farnworth Branch Dispensary	...	...	...	...	145	818
Pendlebury Branch Dispensary	...	...	...	...	125	598
Stretford Branch Dispensary	...	...	...	...	151	831
					798	4290

Attendances of patients at the Eccles Dispensary for artificial light treatment	6538
Care committee meetings attended by—	
(a) Tuberculosis officers	41
(b) Tuberculosis health visitors	60
Lectures or addresses given	7
Visits by tuberculosis officers to sanatoria, pulmonary and special hospitals, and poor law infirmaries	22
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	23
Visits by dispensary nurses to patients' homes—	
Routine visits	10525
Actual nursing	101
Application of surgical dressings	439
Adjustment of splints and surgical appliances	791
Patients' dispensary attendances for attention by nurses—	
Application of surgical dressings	648
Adjustment of splints and surgical appliances	12
Sanitary defects reported to the local medical officers of health	41
Sanitary defects which after notification were remedied	31
Disinfections carried out by sanitary authorities	493
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment	691

Artificial Light Treatment.

An artificial light centre was established in Area No. 4 at the Eccles Dispensary on the 1st December, 1927.

The following Table 19 shows the results for patients treated at this centre during 1928 :—

Eccles Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons.*	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
Skin (lupus & scrofuloderma)	67	20	1	—	—	5	41
Adenitis with abscess formation and skin involvement ...	27	7	—	—	—	5	15
Adenitis without softening	7	1	—	—	—	—	6
Bones, joints and spine	10	2	—	—	—	2	6
Abdomen	5	1	—	—	—	1	3
Other non-pulmonary conditions	3	—	—	—	—	1	2
TOTAL	119	31	1	—	—	14	73

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (e.g. removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

At the Eccles Light Centre the equipment consisted at first of two 30 ampere "Sunrae" long-flame carbon arc lamps, and a Kromayer mercury vapour lamp. In June, 1928, a Jesionek mercury vapour lamp was added, and in the autumn a Murray-Levick infra-red lamp (purchased from voluntary funds) which has been used sometimes in conjunction with the Jesionek lamp.

It had been my very good fortune to be a student, and subsequently a medical officer, at the London Hospital where light treatment has been continuously in operation since 1900, and local treatment of lupus, etc., with Finsen lamps there resulted in 70 per cent. cures. The addition of general light therapy since 1922 has since increased this percentage to 90. After studying the methods in use there and elsewhere, I came to the conclusion that I could not do better than adopt, as far as practicable, methods that had proved so conspicuously successful, especially as they appeared particularly suitable to the requirements of dispensary treatment in my area. These are: (1) the cure of the patient; (2) the safety of the patient; (3) the possibility of the treatment being carried out by a fully-trained nurse acting under regular but not prolonged medical supervision.

All these desiderata exist in the methods used at Eccles, which are as follows:—

The patients are treated in separate groups (men, women, boys, and girls) and attend on the average three times a week. In addition, there is one evening session per week for men at work all day, and it is interesting to note that of 20 men attending this evening session, 4 have already been discharged as quiescent, while the remainder are improving. Suitable loin-slips and eye-shades are provided at a nominal charge. The urine of each patient is tested before the course is begun, and the temperature at each visit previous to undressing. The carbons used have been of the white-flame variety, and experience has shown that Siemens' "Snow-white" brand are very satisfactory, being cleaner and giving off less fumes than others tried. The initial exposure is 15 minutes back and front, increased at weekly intervals by half-an-hour to a maximum of two and a half hours. The treatment room is very well ventilated by through ventilation and by an electric fan, so that the atmosphere is kept fresh and not too hot. The efficacy of the method is beyond question. Most patients pigment very well, and some to a deep mahogany colour, and they profess a feeling of well-being, although the gain in weight has not been large (average 3 lbs.). Sometimes the addition of milk or other extra nourishment has proved of value in increasing weight.

As the method of minimal stimuli, gradually increased, is perfectly safe, no preliminary skin tests were necessary and no ill-results have occurred.

With the Jesionek lamp, exposures begin at one minute, back and front, increasing at weekly intervals by two minutes to a maximum of 20 minutes.

The local application of the Kromayer lamp has for its object the production of a blister. The time taken to produce this varies from 5 to 10 minutes, or occasionally longer. It is important to make such pressure as will exsanguinate the skin as much as possible.

During the thirteen months under review, the number of patients under treatment at any one time was gradually increased from a few up to a maximum of 74. It has been found that by confining attention to the type of case likely to benefit, it is possible to treat suitable patients without undue delay.

Out of 119 cases, 106 have received general light baths ; 13 receiving Jesionek treatment only, and of these two have been discharged as quiescent. Eleven patients received Jesionek and carbon arc baths, while the remainder received carbon arc baths, which are generally to be preferred in tuberculous cases. Fifty-five patients also received local treatment with the Kromayer lamp.

I have found the most suitable cases to be lupus, scrofulous conditions of the skin, and adenitis, especially with abscess formation. Superficial bone or joint lesions sometimes responded very well, but in three ambulant spine cases with discharging sinuses, although the general health improved, the discharge continued.

It will be readily understood that insufficient time had elapsed at the end of the year for many patients to complete their treatment, but 31 had already become quiescent and apparently cured, while the vast majority of the remainder had either improved considerably or had been under treatment for insufficient time for the condition to show any material change.

Photographs of the earliest cases were not taken before treatment, but this is now regularly done in suitable cases. One pair of photographs has already been published, showing the beneficial results of treatment, and similar photographic records of other patients are now available. One particularly striking case appears worthy of notice :—

E.S. Aged 21 (male). Duration of illness—two years. Stomach symptoms. No sputum. First examined December, 1927 ; weight 5 st. 7 lbs. 12 oz. ; skiagram—mottling right apex ; no definite physical signs. In Peel Hall Hospital 5th January, 1928, to 21st January, 1928 ; refused to eat his food and was discharged. About March developed swelling of the right wrist, left wrist, and right elbow, with sinuses in both wrists. The skiagram showed evidence of tuberculous disease.

Had light treatment from 21st June, 1928, to 9th February, 1929, when he was discharged as quiescent, all the sinuses being healed, and his weight being 8 st. 1 lb. (gained 2 st. 7 lbs.). The chest lesion remained stationary and apparently quiescent throughout.

As regards his light treatment, he had 48 exposures to the Jesionek lamp and 33 to the carbon arc lamp.

It has been found advantageous to combine other forms of treatment with light treatment, following the procedure of the best skin departments. Thus, keloid bands have been divided, abscesses aspirated or incised, and isolated lupus nodules treated locally by caustics. In particular, striking success has been obtained with three cases of extensive lupus verrucosus of the hands, the disease being apparently cured. This type of lupus is not suitable for light treatment until the thick, horny layers are first removed. This was effected by the careful application of suitable plasters, and when the underlying tissues were eradicated, a growth of healthy skin occurred.

In conclusion, the provision of a light centre for treatment within reasonable distance of patients' homes is advantageous to the patients in saving time, money and energy. In this connection, it is interesting to note that whereas on the 1st December, 1927, when light treatment was begun at Eccles, it was necessary for 49 patients from this area regularly to visit a Manchester Hospital for treatment, on the 1st January, 1929, only three patients were so attending.

AREA No. 5.

Seaforth, Hindley, Ince, Newton-in-Makerfield, Warrington Rural, West Lancashire Rural, Whiston Rural, Wigan Rural, and Widnes Districts.

(Estimated population, 378,246.)

Consultant Tuberculosis Officer ... Dr. C. W. LAIRD.

Assistant Tuberculosis Officers ... Dr. C. H. LILLEY.
Dr. G. B. CHARNOCK.

Dr. Laird reports :—

Despite the continued decrease in the incidence and mortality rates relating to tuberculosis there has not been observed in this area any corresponding decline in the duties imposed on the dispensary staff in coping with the disease.

It is perhaps to be expected that active measures must be taken to effect further reduction of the rates in question, and one may derive consolation from the reflection that the activity already called upon may have had some share in the result attained. No doubt there are other factors at work, but were anti-tuberculosis work to cease, or be temporarily suspended or diminished, it is to be feared that the gratifying fall in the death-rate from tuberculosis would not long persist. As in other years such work has been carried out in the dispensaries on routine lines.

At the chief dispensary at Seaforth all the clerical work has been efficiently performed, and there, too, all the bacteriological examinations, with few exceptions, have been carried out. To this dispensary come patients referred from the branch dispensaries at Widnes, Wigan, and St. Helens when X-ray examination is required, and there, also, refills are administered to patients undergoing artificial pneumothorax treatment.

At St. Helens Dispensary treatment of non-pulmonary cases by artificial light is given on three days per week, and on one other day an ordinary dispensary session is held.

At Widnes and Wigan Dispensaries the ordinary sessions are held on two days per week. An evening session is held monthly at three dispensaries, and weekly at St. Helens as may be required.

Care committees exist in the area for six districts or groups of districts, and continue to function satisfactorily. The devotion of those ladies and gentlemen who serve on them voluntarily is much appreciated and gratefully acknowledged.

During the year an additional health visitor was appointed for Area No. 5.

An address was given by me in Widnes on the subject of tuberculosis, at the invitation of the secretaries of the health week organisation.

The following is a summary of the work done in the area :—

Number of tuberculous cases under supervision on 31st December, 1928
(Definitely tuberculous, 2029 ; doubtful, 17.) ... 2046

Examinations by Tuberculosis Officer at—	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of “ <i>old</i> ” cases and “ <i>old</i> ” <i>contacts</i> .
Patients' homes	305	963
Seaforth Chief Dispensary	246	1187
St. Helens Branch Dispensary	138	607
Widnes Branch Dispensary	198	1442
*Wigan Branch Dispensary	295	1613
	877	4849

* New premises at 3, Mesnes Park Terrace, Wigan, were opened on 4th April, 1929.

Attendances of patients at the St. Helens Dispensary for artificial light treatment (including 42 attendances of dispensary patients at Rufford Pulmonary Hospital) 5482

Care committee meetings attended by—

(a) Tuberculosis officers	20
(b) Tuberculosis health visitors	52
Lectures or addresses given	3

Visits by tuberculosis officers to sanatoria, pulmonary and special hospitals, and poor law infirmaries	44
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	18
Visits by dispensary nurses to patients' homes—	
Routine visits	6555
Actual nursing	91
Application of surgical dressings	266
Adjustment of splints and surgical appliances	447
	7359
Patients' dispensary attendances for attention by nurses—	
Application of surgical dressings	1019
Adjustment of splints and surgical appliances	116
	1135
Sanitary defects reported to the local medical officers of health	117
Sanitary defects which after notification were remedied	69
Disinfections carried out by local sanitary authorities	505
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment	896

Artificial Light Treatment.

An artificial light centre was established in Area No. 5 at the St. Helens Dispensary on the 16th January, 1928. Particulars of the lamp equipment at this centre are given on page 31 in the chapter on artificial light treatment.

The following Table 20 shows the results for patients treated at this centre during 1928 :—

St. Helens Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons.*	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
Skin (lupus & scrofuloderma)	57	10	1	—	—	5	41
Adenitis with abscess formation and skin involvement ...	25	6	1	—	—	6	12
Adenitis without softening	24	9	5	2	—	3	5
Bones, joints and spine	4	—	—	—	—	4	—
Abdomen	8	2	1	1	—	2	2
Other non-pulmonary conditions	1	—	—	—	—	—	1
TOTAL... ..	119	27	8	3	—	20	61

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (e.g., removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

Lupus.—The majority of cases treated by artificial light suffer from this disease, and many patients exhibit it in a very extensive and chronic form. In some of them, there will be comparative failure to respond at all, though it may be said that most, if not all, have certainly benefitted under light treatment. The most striking results of light treatment are obtained in the lupus cases. Isolated patches which are particularly resistant often clear up under the additional application of the Kromayer lamp, or a few minutes extra local exposure to the carbon arc over and above the general irradiation.

Adenitis with abscess formation and skin involvement.—Quite a number of cases of this kind have been under treatment, and the results obtained have been, on the whole, good. It is found that sinuses and ulcers tend to heal.

Adenitis without softening. In this class, the effects of light treatment have not been very striking. Many of the cases show firm, chronically enlarged glands which exhibit no tendency to break down or to diminish in size. The results do not compare with what might be expected in such cases under X-ray therapy.

Bones, joints, spine, and abdomen.—The numbers treated have been too few to permit of any conclusions of value being drawn.

Pulmonary cases were not subjected to light treatment.

FURNESS SUB-AREA.

*Dalton-in-Furness, Grange-over-Sands, Ulverston, and
Ulverston Rural Districts.*

(Estimated population, 38,433.)

Consultant Tuberculosis Officer ... Dr. E. H. ALLON PASK.

Dr. Pask sends the following report :—

The total number of cases on the dispensary register at the end of the year was 303, after striking off as cured 62 cases.

The number of notifications of new cases of tuberculosis (after deducting 6 cancellations) was 73, as compared with 97 the previous year.

The number of deaths also showed a slight decrease, 44 as compared with 47 in the previous year. In the Dalton area, deaths from pulmonary tuberculosis showed a considerable decrease, 10 as compared with

Artificial Light Treatment.

An artificial light centre was established in the Furness Sub-Area at the Ulverston Dispensary on the 5th June, 1928. Particulars of the lamp equipment at this centre are given on page 31 in the chapter on artificial light treatment.

The following Table 21 shows the results for patients treated at this centre during 1928 :—

Ulverston Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons. *	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
Skin (lupus & scrofuloderma) ...	5	—	1	—	—	2	2
Adenitis with abscess formation and skin involvement ...	7	—	—	—	—	2	5
Adenitis without softening ...	4	—	—	—	—	—	4
Bones, joints and spine	1	1	—	—	—	—	—
Total ...	17	1	1	—	—	4	11

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (e.g. removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

Lupus vulgaris. One case was treated and showed some improvement. Two others were still under treatment at the year end. Difficulty has been experienced in working the Kromayer lamp from the public supply of electricity (alternating current) so that these patients could only receive general light baths during the greater part of the time.

Adenitis with abscess formation and skin involvement. The cases of adenitis with abscess formation responded very well to the light baths, and this class of case, I think, gives better results than any of the other types treated. None of the cases actually completed their treatment during 1928, but at the end of the year the condition of most of them had improved to such an extent that skin involvement was quite healed, and the treatment was continued in order that the patients might receive benefits from the general tonic effects of the light treatment.

Adenitis without softening. As regards the adenitis cases without softening, the results here were quite good, and the glands invariably showed evidence of shrinking as the result of the treatment, although the majority of them have not disappeared entirely.

Bones, joints and spine. The bone and joint cases that were treated were, with one exception, quiescent cases on commencement of the treatment. The active case was quiescent and apparently cured when treatment was concluded. Light treatment was prescribed for the cases which were quiescent on commencement of treatment owing to the poor general condition of the patients, and the results in all the cases were satisfactory.

Abdomen. As regards abdominal tuberculosis, only two cases received this form of treatment, and here again, the treatment was undertaken more for general tonic purposes as the disease was quiescent.

Summing up the experience gained during the six months the light treatment has been in use, I have come to the conclusion that this form of treatment is undoubtedly beneficial, especially in gland cases. It has a marked effect on the well-being of patients, and they look forward to receiving light baths.

In no case have I seen any bad effects as a result of the treatment.

FYLDE SUB-AREA.

Fleetwood, Fylde Rural, Garstang Rural (part of), Kirkham, Poulton-le-Fylde, Preesall, and Thornton Districts.

(Estimated population, 61,969.)

Consultant Tuberculosis Officer ... Dr. G. LEGGAT.

Dr. Leggat reports :—

The main point on which to report is that local medical practitioners have made very full use of the dispensary organisation, as is evidenced by the number of consultations and the larger proportion of new cases referred to the dispensary by the doctors.

During the year, 178 sputum examinations of dispensary cases were carried out at the Elswick Sanatorium laboratory, of which 32 were found to be positive.

X-ray examinations of dispensary area patients have been carried out at the Elswick Sanatorium. The number of skiagrams taken was 234, and 11 screen examinations were made.

The following is a summary of the work done in the sub-area :—

Number of tuberculous cases under supervision on 31st December, 1928 (Definitely tuberculous, 413 ; doubtful, 3.)										416
										=====
Examinations by Tuberculosis Officer at—					Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.			Re-visits or re-attendances of “ <i>old</i> ” cases and “ <i>old</i> ” contacts.		
Patients’ homes					...	...	...	...	52	154
Fleetwood Branch Dispensary					...	...			106	744
Attendances of patients at the Fleetwood Dispensary for artificial light treatment (including 28 attendances of dispensary patients at Elswick Sanatorium)										1062
Visits by tuberculosis officer to sanatoria, pulmonary and special hospitals, and poor law infirmaries					...	...	...	...	...	6
Visits by dispensary nurse to patients’ homes—										
Routine visits					...	...	...	...	2242	} 2413
Actual nursing					...	...	...	...	34	
Application of surgical dressings					...	...	...	...	72	
Adjustment of splints and surgical appliances					...	...	...	...	65	
Patients’ dispensary attendances for attention by nurse—										
Application of surgical dressings					...	...	...	...	...	47
Sanitary defects reported to local medical officers of health								...	...	23
Sanitary defects which after notification were remedied								...	...	18
Disinfections carried out by local sanitary authorities								...	...	60
Cases referred by medical practitioners, Pensions authorities, &c., to tuber- culosis officer for an opinion as to diagnosis or treatment										118

Artificial Light Treatment.

An artificial light centre was established in the Fylde Sub-Area at the Fleetwood Dispensary on the 25th June, 1928. Particulars of the lamp equipment at this centre are given on page 31 in the chapter on artificial light treatment.

The light apparatus was only installed at Fleetwood in June, and I am afraid this does not give time enough to enable me to give a report, though it was observed that the best results appeared to be obtained in cases mainly of skin lesions and lupus.

Two types of lamps were in use—a Kromayer and a carbon arc. With the former, the minimum exposure given was 4 minutes on pressure and 1 minute at 4 inches distance, and the maximum given was 6 minutes on pressure and 9 minutes at 4 inches distance. Two grades of carbons were used with the arc lamp—"Sunic" med. grade "A" with exposures up to 15 minutes back and 15 minutes front, and "Sunic" med. grade "C" with exposures up to 10 minutes back and 10 minutes front.

The following Table 22 shows the results for patients treated at this centre during 1928 :—

Fleetwood Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1928.	Condition of patients whose treatment concluded in 1928.				Ceased treatment for other reasons.*	Still under treatment at end of 1928.
		Quiescent and apparently cured.	Improved.	Stationary.	Worse.		
Skin (lupus & scrofuloderma) ...	8	—	—	—	—	1	7
Adenitis with abscess formation and skin involvement ...	10	1	—	2	—	1	6
Adenitis without softening ...	4	—	—	—	—	1	3
Bones, joints and spine	5	1	—	—	—	—	4
Abdomen ...	2	—	1	—	—	1	—
Other non-pulmonary conditions ...	1	—	—	—	—	1	—
Pulmonary tuberculosis Bronchial glands ...	1	—	1	—	—	—	—
Pulmonary and non-pulm. tub. combined. Sputum positive and bones ...	1	—	—	—	—	—	1
Total ...	32	2	2	2	—	5	21

* Includes : (1) any patient who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (e.g. removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

VIII.—CARE WORK.

Consumption is the most prevalent form of tuberculosis which is usually a chronic disease, and it attacks chiefly adults in the prime of life. These facts are the basis on which rests the need for and the great value derived from what is termed care work—or after-care work. Care work may be described as something additional to routine measures adopted by a local authority in its tuberculosis scheme for the prevention and treatment of this infectious disease.

Under the Lancashire scheme dealing with tuberculosis, persons who apply for treatment are examined by the tuberculosis officer, either at their homes or at the dispensary, and as and when required are supplied with paper handkerchiefs and sputum flasks to prevent the spread of infection; dressings if suffering from “open” surgical tuberculosis; special nourishment, usually in the form of milk; thermometers and appliances such as splints, crutches, supports and surgical boots; and the loan of bedsteads and mattresses, if necessary, to enable patients in an infectious state to have a bedroom to themselves. This may be described as the *preventive* side of home treatment, and is, of course, additional and supplementary to the medical treatment of patients by their own doctors.

The various measures of social insurance (*e.g.*, the National Insurance Acts, the Widows’, Orphans’ and Old-Age Contributory Pensions Act, the Superannuation schemes of various bodies) are all valuable—and will be more so as time goes on—in reducing the number of cases of distress in tuberculous households.

THE VOLUNTARY CARE COMMITTEES.

Despite these official measures and means of assistance there is still ample need for voluntary care committees, of which at the end of the year there were 19 recognised by the County Council, the whole covering an estimated population of 845,082 out of an estimated County population of 1,811,000.

The following are in general the objects for which the voluntary care committees may be said to stand:—

- (1) To assist in the purchase of clothing which patients need when they go to a sanatorium or hospital.
- (2) To provide food and clothes for poor patients who are receiving treatment at home.

- (3) To give assistance (in kind) to dependants, so as to enable patients, for whom institutional treatment has been recommended, to take advantage of the opportunities provided under the County scheme.
- (4) To assist patients, who are sufficiently recovered, to obtain suitable employment.
- (5) To give suitable advice and encouragement to patients and their friends, and generally to assist the dispensary staff in the enlightenment of the public both as to the laws of health and the facilities for treatment.

Particulars of the populations served, the number of patients assisted, and the amounts expended during 1928 are as follow :—

TABLE 23.—*Summary of Work done by Voluntary Care Committees.*

Name of Committee.	Estimated Population Served 1928.	Number of Individual Patients Assisted during 1928.	Expenditure during 1928.		
			£	s.	d.
Ashton-under-Lyne and District...	69,513	69	355	8	7
Bacup and Rawtenstall ...	49,540	15	21	8	4
Chorley and District ...	73,850	36	253	11	11
Earlestown, Newton and District ...	22,103	31	60	2	8
Eccles Guild of Help ...	45,200	6	4	9	10
Egerton, Eagley and District ...	5,759	2	6	1	4
Farnworth and District ...	70,373	37	113	11	11
Golborne ...	7,477	12	51	7	3
Horwich ...	16,850	17	151	6	10
Huyton-with-Roby District ...	5,117	—	—	—	—
Lancaster and District ...	82,176	13	66	2	0
Leigh and District...	90,024	45	137	1	5
Prescot and District ...	21,376	15	61	4	10
Prestwich ...	21,670	1	1	0	0
*Radcliffe, Whitefield and District Relief Fund ...	35,636	18	177	5	0
Stretford Guild of Help ...	52,110	23	54	5	2
Westhoughton ...	17,510	16	48	1	9
Widnes ...	41,010	29	28	3	6
Wigan County District ...	117,788	76	109	6	1
TOTAL ...	845,082	461	1699	18	5

* Relates to year ended 31st March, 1929.

The County Council has continued to make a grant of $33\frac{1}{3}$ per cent. of the committees' expenditure on actual assistance to patients.

The annual reports and balance sheets of the various committees are considered by the County Tuberculosis Committee of the County Council, who have expressed their earnest appreciation of the valuable voluntary work carried out.

In addition to the 19 voluntary care committees approved by the County Council, there are in existence many charitable and other

organisations to which the tuberculosis officers are able to refer necessitous cases. For ex-service men there are two organisations, namely : (a) the Joint Council of the Order of St. John of Jerusalem and the British Red Cross Society, which deals with tuberculous pensioners, and (b) the Council of Management of the United Services Fund, which mainly looks after the interests of those tuberculous ex-service men who are *not* in receipt of war pensions.

The Ministry of Health, in a circular issued in December, 1928, laid down a scheme for co-operation between the managers of the various employment exchanges of the Ministry of Labour and the tuberculosis officers with regard to the employment in suitable occupations of male patients on discharge from sanatoria or hospitals. With the present large amount of unemployment in the country, there has been little opportunity for the scheme to show good results.

CARE WORK THROUGH DISPENSARY ORGANISATION.

The voluntary care committees only cover a little less than half the County, and there is left a balance of nearly 1,000,000 persons to be dealt with by other means, pending the formation of new voluntary committees. In the areas without care committees the County Council have charged the tuberculosis dispensary staff with the duty of carrying out the relief work.

With regard to finance, the Council decided to take as a basis the amount voted to the voluntary committees and in proportion to population to grant a similar sum for the relief of patients in the remainder of the County area. Thus the Council's expenditure on care work is fairly evenly distributed throughout the County, the districts where there are voluntary committees at work having the advantage of the additional funds obtained by them from outside sources.

Grants to necessitous patients or their dependants are made on the recommendation of the consultant tuberculosis officers, with the following general objects :—

- (a) To assist in the purchase of clothing which patients need when they go to a sanatorium or hospital.
- (b) To provide food and clothes for necessitous patients who are receiving treatment at home, and for those who have returned from an institution with no chance of resuming work.
- (c) To give assistance (in kind) to dependants, so as to enable patients, for whom institutional treatment has been recommended to take advantage of the opportunities provided under the County scheme.

All assistance, wherever possible, to be given by orders on tradesmen.

The tuberculosis officers report that the scheme is working very satisfactorily and assisting materially in aiding patients to undergo treatment.

During 1928, assistance was afforded through the dispensary staff to 175 individual patients, the amount expended being £731 7s. 4d. The assistance was mainly in the provision of milk, groceries and clothing.

The whole Administrative County is therefore covered by a complete and comprehensive scheme.

EXAMPLES OF CASES ASSISTED.

Below are given particulars of typical cases which have been assisted from the care funds of the voluntary care committees and the County scheme :—

- (1) The patient, a labourer, was unfit for heavy work and unable to find a suitable occupation. He received at the instance of the County Council a course of treatment combined with training in boot repairing; whilst awaiting admission he was assisted by the provision of groceries and the payment of rent. On the expiration of his treatment and training the care committee provided him with the necessary tools and a quantity of leather to enable him to commence in a small way at home.
 - (2) An adult male with spinal disease, referred to the dispensary in September, 1926. Being unable to undertake any industrial work he had to give up his occupation, and for some time had only a very small income. He received three months treatment in a special hospital, was discharged wearing a spinal support, and was considered only fit for light work. In December, 1927, the case was brought to the notice of the care committee as a suitable occupation could not be found. The patient had been granted special nourishment by the County Council, and this was augmented by regular grants from the care committee until April, 1929, when the patient was able to commence a small business.
 - (3) This patient was, in the first instance, sent to a sanatorium for a short period of observation as to diagnosis. The medical superintendent came to the conclusion that the case was one of tuberculosis, and recommended prolonged institutional treatment. There were seven members of the family remaining at home with an income (including National Insurance benefit) of only 39s. 4d. per week, and a rent of 14s. 0d. to be paid. To enable the patient to remain in the sanatorium and take advantage of the treatment which was considered desirable, a weekly grant of groceries was made to the family.
 - (4) A positive sputum case with a wife and five children. He was provided with underclothing to enable him to go to a pulmonary hospital, where he remained until he died. The family was granted groceries to the value of 7s. 6d. per week, together with one quart of milk daily while the patient was in hospital. One of the children has tuberculous neck glands and the others are under the observation of the dispensary staff. The widow's total income is 27s. weekly. Since the patient's death one quart of milk daily and 5s. per week for groceries have been granted to the family.
 - (5) A positive sputum case. The total family comprised three adults and one child, with an income of £2 10s. per week, and a rent of 7s. Pending admission to hospital the patient was granted one pint of milk daily, whilst blankets and a bedstead were loaned to enable him to sleep alone. On admission to hospital he was provided with six articles of underclothing. While the patient was in hospital his wife had to stay away from work to look after a son who had had tonsillitis, and the care committee granted her 5s. per week for groceries.
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IX.—COUNTY SANATORIA AND HOSPITALS.

(1) HIGH CARLEY SANATORIUM, NEAR ULVERSTON.

Medical Superintendent :

E. H. Allon Pask, M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Assistant Medical Superintendent :

James L. Armour, M.B., Ch.B. (Liverpool), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Matron : Miss E. Woosey.

High Carley Sanatorium is situated about three miles west of Ulverston, to the south of the main road to Barrow-in-Furness. The buildings stand in about 23 acres of ground, and accommodation at the end of the year was provided for 112 patients (62 males and 50 females).

The medical superintendent and the assistant are accommodated on the estate ; and seven houses are provided in the vicinity of the sanatorium for the male employees.

With the laying of an electricity supply cable from the Barrow power station to Ulverston, the County Council decided to replace the sanatorium plant by the public supply, and the work of re-wiring took place in 1929.

An agreement exists between the County Council and the Barrow-in-Furness Corporation for the reservation at High Carley of a number of beds, not exceeding 16, for Borough patients. These beds when not required are filled by County patients, in accordance with arrangements with the Corporation.

Dr. Pask reports as follows on matters relating to the treatment of the patients and the administration of the sanatorium :—

The beds have been kept fairly fully filled, 95·9 per cent. of the male beds and 96·3 per cent. of the female beds were occupied throughout

the year. In the Summer months the demand for beds was, as usual, heavy, and four extra beds had to be put up in the women's recreation room as a temporary measure, but their use was discontinued at the end of October. In the Winter, however, there was a falling off owing to the seasonal diminished waiting list.

During the year the treatment of patients has proceeded on the usual lines. In theory there is nothing patients receive at a sanatorium that they cannot get at home—fresh air, nourishing food, systematic rest, and graduated exercise and work. In actual practice, however, treatment at home and treatment in a sanatorium work out very differently for various reasons; in many cases the economic factor is considerable, for in working class homes the means are insufficient for the purchase of an adequate supply of nourishing food. As regards fresh air, this is quite “cheap,” but it is not always easy to persuade patients, even at a sanatorium, to take advantage of it freely, especially in cold weather. The difficulty is all the greater at home when there are other members of the family to be considered; also some houses do not lend themselves to proper ventilation. In a sanatorium constant medical and nursing supervision is an important factor for ensuring that rest-time is scrupulously observed, and the proper amount of graduated exercise and work is taken. It is a very small percentage of patients who do not show some immediate response to sanatorium treatment, and the fact that more do not permanently benefit is largely due to their curtailing their stay for some reason or other. At a sanatorium it is most important that close touch should be maintained between doctor and patients, so that each patient can be considered individually from every point of view, for, in addition to the lung lesion differing there is the temperamental factor, the power of resistance, and the future of each patient to be considered. For these reasons it is most important that sanatoria should not be too large as they tend to become unwieldy.

As regards graduated work, each case is judged on its merits, and an attempt is made as far as possible to set patients to some work congenial to them; it is surprising the interest taken by patients in their tasks if they are given encouragement and sympathetic medical supervision. The latter I consider very important, as in most cases supervision other than medical is doomed to failure from the outset owing to lack of proper appreciation of the patient's physical condition and his temperament.

The male patients commence with light duties, such as dusting, cleaning brasses, sweeping with a light brush, collecting temperature charts, etc. As their condition improves they are put on various tasks involving greater physical exertion. Constructive work has

a wide appeal, and in this connection a very large army hut has proved most useful. It is divided into three parts where joinery work, painting, hurdle making, boot repairing, and wicker chair repairing are carried out. No hired instructors are employed, nor are they necessary at a sanatorium where treatment is the main objective.

During the year in the joiner's shop, various articles have been made for use at the sanatorium and the County dispensaries, the output including cupboards, splints, spinal boxes, shelving, "foster mothers" for poultry, and a hut for a refrigerator, as well as numerous general repairs about the sanatorium. The wicker rest chairs in use at the sanatorium are kept in repair by the patients, thus saving expense for replacement of the chairs which would otherwise be the case.

The boots and shoes of the patients and staff at High Carley and Oubas House are repaired in the shoemaker's shop, and patients are debited with the actual cost of materials. Two men are employed at this work, and 157 repairs have been done as compared with 121 in the previous year.

Gardening in various forms provides useful occupation for other male patients, and the lawns are kept trimmed by two motor mowers which are worked by patients.

The women, according to their physical condition, are set various tasks, such as dusting, cleaning and polishing lockers, sweeping verandah and cubicles, emptying waste paper baskets, sewing, cleaning cutlery, laying tables, potato peeling and window cleaning. They also undertake light gardening tasks, and it is gratifying to note the keenness with which they keep the flower borders tidy in front of their cubicles.

Three women patients are responsible for the management of the sanatorium poultry farm, and the following figures indicate their interest and success, as before taking on the work they do not possess any previous experience, the knowledge gained by previous patients being handed on to the newcomers :—

	£	s.	d.		£	s.	d.
Stock 1st April, 1928—213				Poultry taken in house ...	13	6	6
hens, cocks and chickens...	19	2	6	Eggs taken in house (10,427)	71	11	2
Poultry food for year ...	58	4	0	Eggs sold (12) ...		2	6
Cockerels (3) ...		2	5	Stock 31st March, 1929—			
Netting and repairs ...	1	8	3	110 hens ...	13	15	0
				100 chickens ...	5	0	0
	80	19	9	3 cocks ...		7	6
Balance—profit ...	23	2	11				
	£104	2	8		£104	2	8

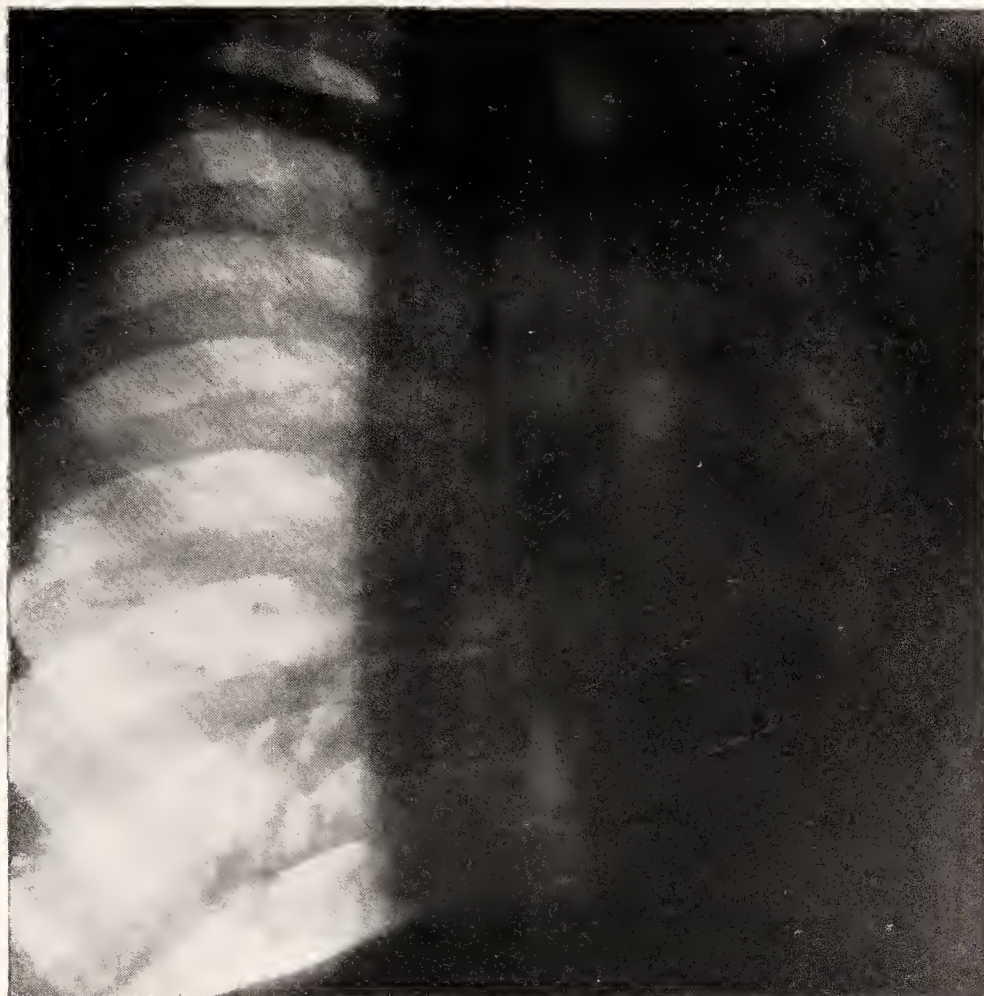
No charge is included for the patients' labour. Purposful occupation has been found for three patients at a time, a supply of fresh eggs has been available for the institution, and the project has been carried out at a profit.

Treatment by artificial pneumothorax has been continued in suitable cases, and the results have been up to the standard of previous years. This form of treatment was attempted altogether in ten cases ; in four it had to be abandoned owing to adhesions or pleural effusion. Of the remaining six, four showed marked improvement, and a fifth patient, who had extensive disease with positive sputum, recovered sufficiently to be able to leave for the Malay States to take up an engineering appointment. In the sixth case the patient had bilateral disease, and artificial pneumothorax was carried out on the side most affected with beneficial results for a time, but the patient died suddenly from hæmoptysis. It is interesting to note that at the autopsy the site of the hæmorrhage in the lungs was found to be on the opposite side to that in which artificial pneumothorax was induced. A very noticeable feature in cases receiving pneumothorax treatment is the effect it has in diminishing the amount of sputum. It is quite a common experience in cases where no diminution in the sputum occurred under ordinary sanatorium treatment for the sputum to become rapidly less when artificial pneumothorax treatment is given.

A trial was given to Tuberculin B.E. (Parke Davis), and Ostelin, details of which are given in Chapter II. on new methods of treatment. Also, in 1929, a commencement was made in the trial of Sanocrysin.

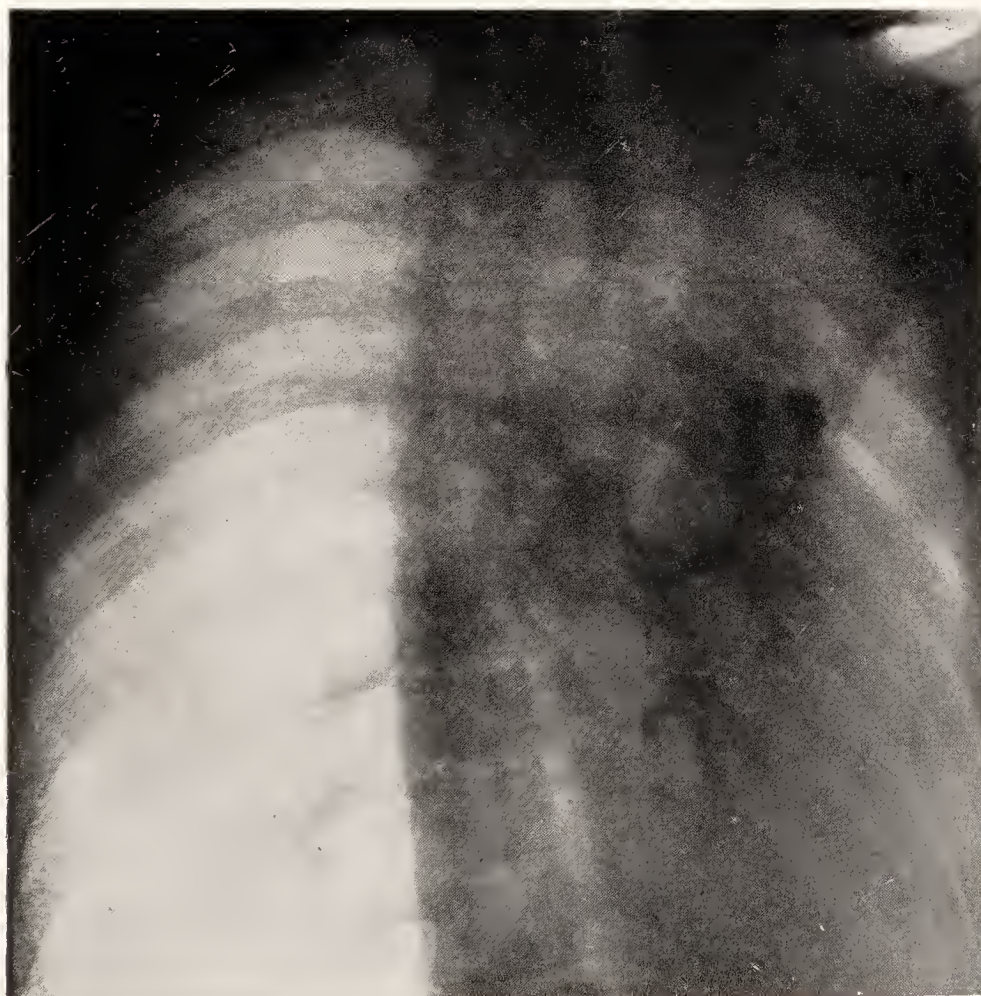
During the year I commenced to use Lipiodol as an aid to diagnosis with special reference to differentiating cases of bronchiectasis from pulmonary tuberculosis. Lipiodol is a preparation of iodine and poppy-seed oil, and is opaque to X-rays. The method I have employed in most cases is to inject the Lipiodol into the trachea through the crico-thyroid membrane. The skin is anæsthetised by Novocain, and a trochar (made specially for the purpose) is inserted directly in the trachea without any further anæsthesia. I have found this method preferable to the oral routes as safer and less distressing to the patients. During the injection the patient leans over to the side required—left or right—and a skiagram is taken one or two minutes after. On the skiagram the position of the Lipiodol is seen clearly in the bronchi and enables any abnormality to be detected. In giving the Lipiodol to dispensary patients living within reasonable distance of the sanatorium I have not found it necessary to admit them as in-patients ; they have all been quite fit to return home on completion of the skiagram. (See skiagrams L. 1. (a) and (b), and L. 2. (a) and (b)).

SKIAGRAMS ILLUSTRATING THE USE OF LIPIODOL.



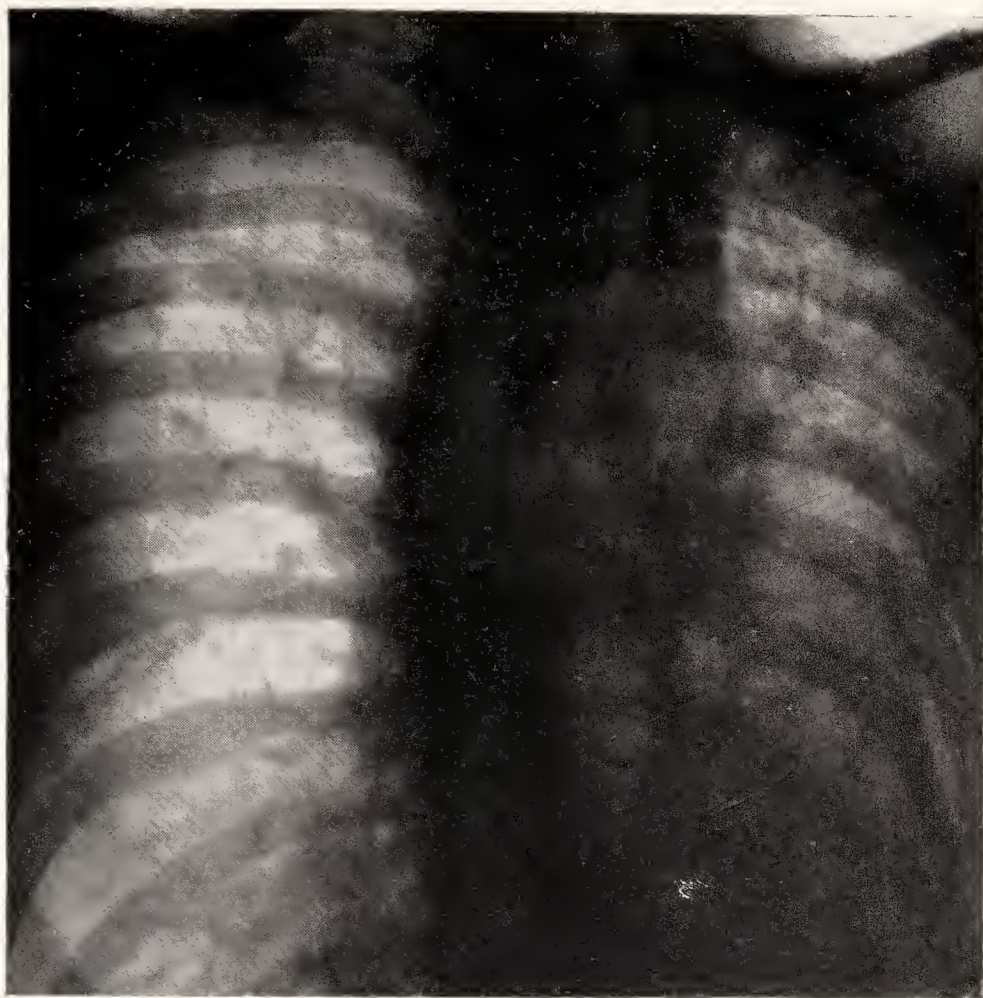
SKIAGRAM L.I.—(a) Patient J.H., male, aged 30. Patient admitted to High Carley Sanatorium on 7/11/28 for observation as to diagnosis. History:—pneumonia five months before admission, cough persisting ever since. Physical signs:—impaired percussion note left base below nipple and crepitations to nipple; a patch of tubular breathing along the vertebral border and left scapula; some clubbing of fingers. Temperature normal; sputum always negative but not large in amount, averaging 3 drachms per day.

Skiagram, taken 12/11/28 before injection of Lipiodol, shows general opacity over the greater part of the left side with the trachea pulled considerably over to the left. Nothing definite in skiagram pointing to pulmonary tuberculosis.



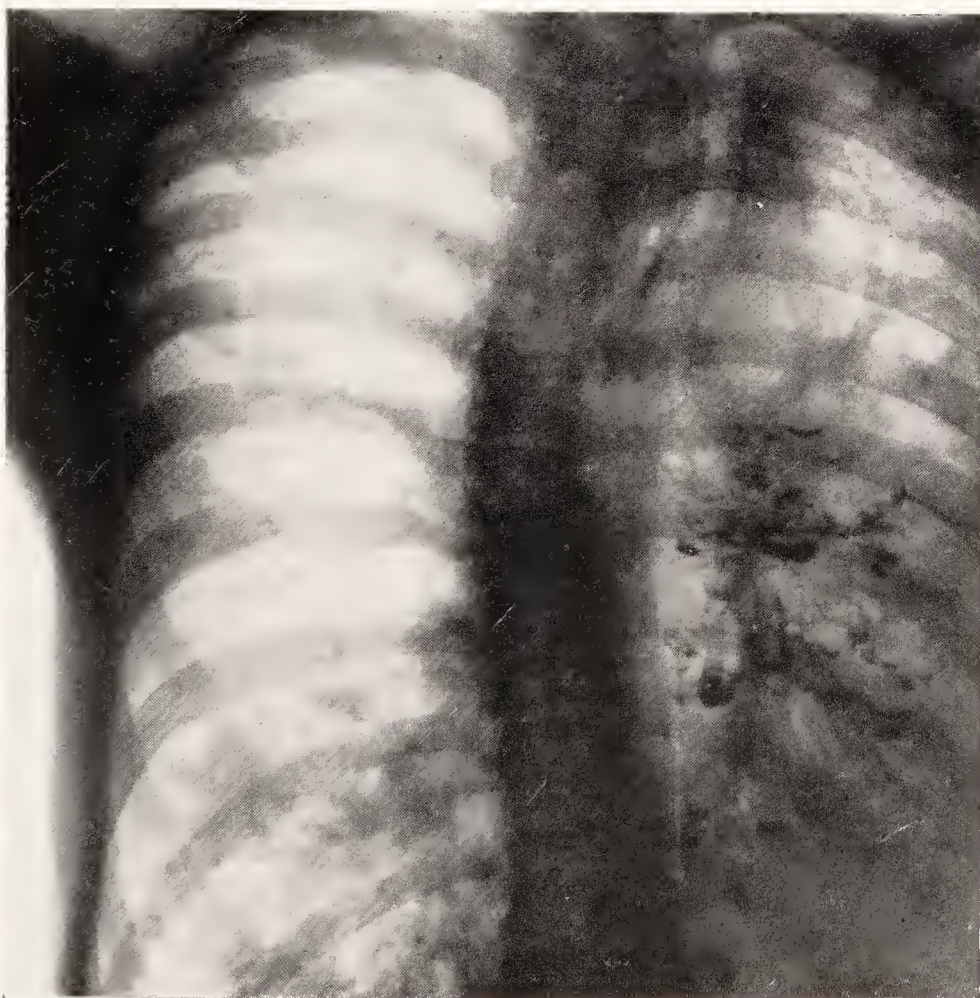
(b). Skiagram, taken 29/12/28 after injection of 12 cc. Lipiodol, shows considerable dilatation of ascending and descending bronchi of the left side, this being filled with Lipiodol. Dilatation in this case is of the fusiform type. Diagnosis bronchiectasis.

[Skiagrams taken at High Carley Sanatorium.]



SKIAGRAM L. 2.—(a) Patient W.J.N., male, aged 19. Case notified by medical attendant as tuberculosis and referred to dispensary on various occasions during past five years by three different medical practitioners as a case of pulmonary tuberculosis. History: cough commenced eight years ago after pneumonia and has persisted ever since; patient brings up about six ounces of offensive sputum per day which has always been negative for tubercle. Patient has trained himself to expectorate at regular intervals so as not to interfere with his work. Physical signs: diminished expansion all over left side with some dulness below the nipple; no definite evidence of cavitation; clubbing of fingers.

Skiagram, taken 12/12/28 before injection of Lipiodol, shows considerable lack of illumination at the left base and thickening of the bronchial shadows; two annular rings at the junction of the lower and middle thirds of the left lung; at the left apex there are fairly coarse reticular markings not typical of the mottling of tubercle; trachea is pulled over considerably to the left side there is some scoliosis of the dorsal spine.



(b). Skiagram, taken 3/1/29 after injection of 15 cc. Lipiodol, shows dilated bronchi of the left lower lobe. In many of the bronchi the fluid level in the cavities is revealed and takes the form of a so-called "bird's nest" appearance. Diagnosis: bronchiectasis. It was not necessary to admit the patient to the sanatorium for injection of Lipiodol. He was able to return home after the completion of the skiagram.

[Skiagrams taken at High Carley Sanatorium.]

The care of the teeth is most important for, apart from the grosser lesions of the mouth, oral sepsis is a hindrance to recovery. The dangers of septic absorption from the mouth are too well known to be stressed. Patients who require an adequate supply of nourishing food as part of the treatment must be in a position to masticate it properly. A dentist (Mr. A. Miller, L.D.S.) attends weekly at the sanatorium.

The sputum of patients is examined monthly as a routine matter, but in any doubtfully tuberculous cases it is examined at more frequent intervals. Staining is done by the ordinary Ziehl-Nielsen method in preference to the special sedimentation methods which in practice, do not give results commensurate with the extra time and labour involved. Specimens of sputum were examined to the number of 1,494, of which 722 were found to be positive and 772 negative.

One hundred and seven patients were admitted to the institution with a positive sputum, and of these 20 were discharged with a negative or no sputum. The bacillary loss worked out at 18·69 per cent. as compared with 20·56 per cent. for 1927, and 17·92 per cent. average for the four previous years.

During the year Nurses Thompson and Cummings completed two years' service as probationer nurses, and were successful in obtaining certificates for having passed examinations in nursing, elementary anatomy, and physiology. Nurse Thompson has been retained as a staff nurse, and Nurse Cummings left to take up nursing at a general hospital.

The work of the X-ray department increases year by year as the following figures show :—

	Sanatorium Cases.		Dispensary Area Cases.	
	Skiagrams.	Screen Examinations.	Skiagrams.	Screen Examinations.
1927	126	124	186	141
1928	194	176	180	145

The X-ray plant is a very valuable aid to diagnosis, and in definite cases affords the best means of seeing the extent of the trouble.

The needs of the patients as regards recreation have been adequately catered for; billiards, clock golf, bowls, and croquet being available. Whist drives and concerts have been held during the winter months, and as usual, Christmas was a very happy time, the majority preferring to remain at the sanatorium rather than apply for leave.

The garden accounts for the year show a small profit, and a large quantity of produce has been grown for the institution. The experimental orchard of half an acre in extent, which was planted ten years ago, is showing signs of becoming a most useful asset, as the trees, which look very healthy, have reached the stage when one expects good crops.

A substantial road has been made, with the necessary pitching, from the laundry block to the back kitchen door, thus completing the whole side road which is used for all the heavy traffic for the sanatorium. This is a very great improvement on the old cinder track.

The following table shows the condition of patients discharged during the year 1928 :—

TABLE 24.

Classification on admission to the Institution.	Condition at time of discharge.	Duration of Residential Treatment in the Institution.				Total.	
		Under 3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
B. Minus.	Quiescent	36	21	6	2	65	67.0
	Improved	13	3	2	—	18	18.5
	No material improvement ...	7	2	2	—	11	11.3
	Died in Sanatorium	1	1	1	—	3	3.1
T.B. Plus 1.	Quiescent	9	5	4	1	19	42.2
	Improved	7	8	4	—	19	42.2
	No material improvement ...	2	2	2	—	6	13.3
	Died in Sanatorium	—	1	—	—	1	2.2
T.B. Plus 2.	Quiescent	2	5	2	1	10	11.6
	Improved	33	19	2	1	55	63.9
	No material improvement ...	10	6	3	—	19	22.1
	Died in Sanatorium	2	—	—	—	2	2.3
T.B. Plus 3.	Quiescent	—	—	—	—	—	—
	Improved	1	—	1	—	2	50.0
	No material improvement ...	1	—	—	—	1	25.0
	Died in Sanatorium	1	—	—	—	1	25.0
		Under 1 week.	1—2 weeks.	2—4 weeks.	More than 4 weeks.		
Observation for purpose of diagnosis.	Tuberculous (pulmonary) ...	1	—	—	8	9	40.9
	Non-tuberculous	—	—	2	10	12	54.5
	Doubtful	1	—	—	—	1	4.5

Total ... 254

(2) OUBAS HOUSE CHILDREN'S SANATORIUM, ULVERSTON.

Medical Superintendent : Dr. E. H. Allon Pask.*Assistant Medical Superintendent* : Dr. J. L. Armour.*Matron* : Miss E. Woosey. *Sister-in-Charge* : Miss D. Pope.

In May, 1920, the County Council took Oubas House on an assignment, for the residue of a term of 21 years dating from November, 1912, and in July, 1928, purchased the property for the sum of £1,500. The premises have been re-decorated throughout, and also re-wired for electric light from the public supply.

The house stands in its own grounds (about one acre in extent), and accommodates 21 girls. A portion of an army hut has been adapted for use as a classroom. Educational instruction is given to the children in conformity with the requirements of the Board of Education.

This sanatorium is administered in conjunction with the High Carley Sanatorium, the nursing staff at Oubas House consisting of a sister-in-charge, two probationer nurses (one of whom acts as night-nurse), and also one certificated teacher.

Dr. Pask reports as follows :—

During the year 34 children were admitted, 33 were discharged, and one died. Nine of the admissions were cases sent for observation in regard to diagnosis, and five of these I found to be definite cases of tuberculosis.

Eighty-three examinations of sputum were made, 11 of which were positive and 72 negative.

The number of positive sputum cases in the institution at the end of the year was 4 (i.e. 19%) which is a larger number than usual. It is generally conceded that the prognosis of children with positive sputum is bad, but I do not think it is any worse than of females in the age-group 15–25 years.

No case of ordinary infectious disease (e.g. scarlet fever, diphtheria, etc.) occurred during the year ; in fact none has occurred since May, 1924, which is a good record, and shows, I think, that the sanatorium treatment, in addition to increasing the resistance to tuberculosis, is efficacious in helping individuals to ward off infectious diseases.

Natural sun treatment was given to suitable subjects as occasion permitted under careful supervision. Improvement was noted especially in the general condition of the children. Tea was taken on the lawn in the shade of the trees on many occasions during the Summer.

In the school, besides ordinary lessons much useful and interesting handicraft is taught, such as rug making, tray making, raffia work, basket work, and wool embroidery; whenever possible the classes are held in the open air. Walks, frequently combined with nature study, are also taken in the company of the teacher, Miss Gibson. The children also perform a little light work in the garden such as weeding, planting bulbs and seeds.

The patients' amusements are catered for by a wireless set, a gramophone, games and toys. Many friends from far and near have presented gifts of fruit, flowers, eggs, sweets, books and toys, and their generosity is much appreciated. Their kindness was very noticeable at Christmastide when the children thoroughly enjoyed themselves.

In May, Dr. Muriel Bywaters visited the institution to make a tour of inspection for the Board of Education, and expressed herself satisfied with the sanatorium.

I should like to tender my thanks to Sister Pope for the efficient way in which she carries out her duties.

(3) ELSWICK SANATORIUM, NEAR KIRKHAM.

Medical Superintendent :

George Leggat, M.B., Ch.B., D.P.H. (Aberdeen).

Matron : Miss I. G. Barclay.

This sanatorium is situated on the east side of Elswick village, and is about six miles from Kirkham station. The buildings and about 11 acres of land belong to the Fylde, Preston, and Garstang Joint Smallpox Hospital Board, and were taken on lease by the Lancashire County Council in 1913 for a period of 21 years. Negotiations were concluded in 1929, to extend the lease for a further period of 21 years from 1934. The Council are under an obligation to vacate the premises in case of a severe epidemic of smallpox. The accommodation was originally used entirely for 57 pulmonary cases, but in February, 1925, the male pavilion was adapted for 24 non-pulmonary cases. The accommodation now provided is : Pulmonary cases, 16 males and 25 females; non-pulmonary cases, 12 males and 12 females; total 65. An X-ray apparatus is provided in a separate building erected in 1925.

During the year, 78 County patients received some form of dental treatment from the visiting dental surgeon (Mr. J. J. Ward).

Dr. Leggat reports as follows on matters relating to the treatment of patients and the administration of the sanatorium :—

The special feature in regard to Elswick is its continuation as a centre for the treatment of all forms of tuberculosis. It is now over four years since the hospital was reorganised in order to admit and treat non-pulmonary cases in addition to pulmonary. Though this was an emergency measure at the commencement, the results being encouraging and the need of non-pulmonary beds urgent, Elswick has been maintained as a centre for all types of cases.

The treatment of non-pulmonary cases has been carried out on the lines now universally adopted, the general condition of the patient being improved and maintained by fresh air and good wholesome food. The local conditions are treated by conservative methods, to keep the parts affected fixed, and to prevent or correct deformity. Though every endeavour is made to avoid operative interference, it is found with adults that this is more frequently required than is the case with children. Further, it has been noted that the majority of the children respond rapidly to general treatment, which is not so with the adults. This may be due to the fact that most of the patients admitted to the surgical side are old-standing cases, the larger proportion having abscesses with sinus formation. On the other hand, it is astounding how some of the most hopeless cases respond to treatment. To cite one instance, a young girl of 17 years of age (having on admission multiple lesions in the hip, knee, and elbow, with abscess and sinus formation, complicated by signs of amyloid degeneration) made a complete recovery and was discharged with marked improvement in the general condition, all lesions arrested, and no evidence of amyloid degeneration. She has remained perfectly fit since discharge and is now training for work.

In addition to general methods, special forms of treatment have been tried, of which the most important has been heliotherapy, both natural and artificial sunlight being used. It has been found that the response to sunlight rays varies according to the individual and the type of lesion. Superficial sinuses generally do well, but deep-seated sinuses of the hip and spine do not appear to show the same response, in fact my experience is that in some cases it tends to do definite harm. All patients for sunlight treatment are specially selected, and the treatment carefully controlled by the sister-in-charge under my supervision.

Injection of sinuses with Lipiodol was tried, but it did not appear to do any good. In several instances it seemed to cause healing from below, necessitating surgical interference.

As regards pulmonary cases, the two most interesting features have been experiments on the effects of heliotherapy, and treatment by splint fixation. The latter has now been tried for the past 12 months, and though still in its experimental stage the results so far encourage a continuance. With regard to the former both natural and artificial sunlight were used, and provided that this form of treatment is very carefully supervised I think that a certain number of lung cases do derive benefit.

The number of skiagrams taken of sanatorium cases was 208, and in the institution laboratory 223 sputum examinations were carried out, of which 100 were positive for tubercle bacilli.

Complaints in regard to the food supplied are unknown at Elswick, and I have to thank the Matron, Miss Barclay, for the excellent manner in which she manages this part of the work. I should also like to thank the sisters of the wards for their help in carrying out new forms of treatment, which for them has entailed a considerable amount of extra work, and my clerk for his assistance with X-ray and bacteriological work.

The carpenter's shop has provided occupation for some of the male pulmonary patients, and under the direction and instruction of Mr. F. Longton, many useful additions to the furnishings and fittings of the institution have been made (in particular a sectional viewing box and special cupboard for the X-ray room, table for plaster room, and storage racks for linen, etc.), in addition to many and various splints for use in the surgical wards, and to maintaining in good repair all flooring boards, windows, and shelves.

I also wish to take this opportunity of thanking all who have made donations and gifts, more particularly Mrs. Todd, of Farington Lodge, and Miss Wright, of the County Offices, who periodically have sent in collections of books for the use of the patients, which have been greatly appreciated.

The visiting dentist, Mr. J. J. Ward, of Preston, has carried out his duties in a very efficient and thorough manner, and has contributed in no small degree to the general well-being of the patients.

The following table gives the condition of patients discharged during 1928 :—

TABLE 25.

Classification on admission to the Institution.	Condition at time of discharge.	Duration of Residential Treatment in the Institution.				Total.	
		Under 3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
T.B. Minus.	(a) Pulmonary.						
	Quiescent	1	3	6	3	13	68·4
	Improved	2	2	—	1	5	26·3
	No material improvement	—	1	—	—	1	5·3
T.B. Plus 1.	Died in Sanatorium	—	—	—	—	—	—
	Quiescent	—	2	2	3	7	41·2
	Improved	2	1	2	—	5	29·4
	No material improvement	—	1	2	1	4	23·5
T.B. Plus 2.	Died in Sanatorium	—	—	—	1	1	5·9
	Quiescent	—	—	2	1	3	17·6
	Improved	—	4	1	2	7	41·2
	No material improvement	4	2	1	—	7	41·2
T.B. Plus 3.	Died in Sanatorium	—	—	—	—	—	—
	Quiescent	—	—	—	—	—	—
	Improved	—	—	—	—	—	—
	No material improvement	—	—	1	—	1	100
Bones and Joints	Died in Sanatorium	—	—	—	—	—	—
	(b) Non-Pulmonary						
	Quiescent	4	1	7	4	16	76·2
	Improved	1	—	—	1	2	9·5
Abdominal	No material improvement	1	—	—	—	1	4·8
	Died in Sanatorium	—	—	1	1	2	9·5
	Quiescent	—	—	—	—	—	—
	Improved	—	—	—	—	—	—
Other Organs	No material improvement	1	—	—	—	1	100
	Died in Sanatorium	—	—	—	—	—	—
	Quiescent	—	—	—	—	—	—
	Improved	—	—	1	—	1	100
Peripheral Glands	No material improvement	—	—	—	—	—	—
	Died in Sanatorium	—	—	—	—	—	—
	Quiescent	—	—	—	—	—	—
	Improved	—	—	—	—	—	—
Observation for purpose of diagnosis.	No material improvement	—	—	—	—	—	—
	Died in Sanatorium	1	—	—	—	1	100
	(c) Observation Cases	Under 1 week.	1—2 weeks.	2—4 weeks.	More than 4 weeks.		
Observation for purpose of diagnosis.	Tuberculous (non-pulmonary)	—	—	—	—	—	—
	Non-tuberculous	—	—	—	2	2	100
	Doubtful	—	—	—	—	—	—

Total .. 80

(4) CHADDERTON PULMONARY HOSPITAL.

Visiting Medical Superintendent :

James Wood, M.D., Ch.B., D.P.H., R.C.P.S.I.

Matron : Miss E. Simmons.

An agreement was made on the 1st October, 1919, with the Chadderton, Royton, and Crompton Joint Hospital Board for the use of the buildings at Racefield, erected as a smallpox hospital, for the treatment of patients suffering from pulmonary tuberculosis. Accommodation is now provided for 45 female patients. The County Council are under an obligation to vacate the premises in case of an epidemic of smallpox.

Dr. Wood reports as follows :—

During the year 94 patients were admitted, and 92 were discharged (including 34 deaths, and 11 transfers to sanatoria). Eleven of the admissions were under 20 years of age. The average stay in the hospital was 115 days.

No special form of treatment was used during the year. The usual treatment for advanced cases has been carried out—rest in bed, fresh air, varied nourishing food, and gentle exercise for those whose condition warranted it. A number of the patients improved very much, and some who were willing to undergo further treatment were transferred to sanatoria.

Good use has been made of the reading facilities provided for the patients and the staff by the County Council and various friends. The patients' library contains 400 books, and the staff library 136 books.

Every endeavour is made by the staff to make the patients comfortable both in body and mind.

The grounds are greatly improved, and the patients derive much pleasure from the flowers which are grown.

Several entertainments have been given by people from the surrounding areas and were much appreciated. The wireless set, gramophone, and clock golf have also been great sources of entertainment.

During the year 161 specimens of sputum were examined, of which 86 were positive and 75 negative.

(5) HEATH CHARNOCK PULMONARY HOSPITAL, NEAR CHORLEY.

Medical Superintendent :

J. W. Rigby, M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Matron : Miss H. Sinclair.

By agreement with the Chorley Joint Hospital Board, the County Council erected, equipped, and furnished two pavilions, containing 16 and 14 beds respectively, together with a dining-hall and some staff accommodation. The pavilions were opened in November, 1914. In 1921, a hut was erected as a recreation-room for male patients. The Joint Board are responsible for the administration of the hospital, the County Council paying to them the cost of maintenance.

Dr. Rigby has kindly furnished the following report :—

In my last report, I mentioned that not many changes took place at Heath Charnock, and this same observation is applicable to this year. Being a pulmonary hospital, the conditions of the institution are such that little more improvement could be made for the class of case received here.

During the past year, nothing of moment has transpired. We still consider that the results are as good as possible, and happily no indiscretions have occurred. This condition is largely due to the work of the matron and nurses and thanks should be given to them. I mentioned last year that means of recreation for them should be provided, for I am sure that this would be a means of keeping the juniors longer at our institution and would be appreciated by all.

With regard to the medical work, we depend on open-air treatment, and relieve symptoms by drugs, and I venture to think that the air of this district does an appreciable amount of good to these chest cases. One cause of complaint has been the shortage of water. This has been gradually losing force for two years, but this year it stopped for some hours, when there was the greatest call on the available supply. This was investigated, and it was found that the pipes had become encrusted. These pipes have now been scraped and re-coated, and we have as good a supply as formerly.

We are in the position of being very happy and wanting little, which in a hospital of this nature is a most desirable position.

(6) PEEL HALL PULMONARY HOSPITAL, LITTLE HULTON.

Visiting Medical Superintendent :

G. Jessel, M.A., M.D. (Oxon.), D.P.H. (Manchester).

Matron : Miss A. Jones.

The Hall, with about 17 acres of land attached thereto, was presented in 1914 to the Lancashire County Council by Mr. A. Wynne-Corrie, and an additional 20 acres of land has been purchased. The adaptation of the premises as a pulmonary hospital for the treatment of advanced and chronic cases suffering from tuberculosis—delayed owing to the Great War—was completed in 1921. The County Council in May, 1927, acquired an additional 8 acres of land on the north side of the estate to remove the possibility of dwelling-houses being erected in too close proximity to the hospital.

The accommodation has been increased from 46 to 52, all adult males, by the provision of sleeping shelters. The hospital serves principally Dispensary Area No. 4 in taking advanced, observation, and educational cases.

A motor ambulance is provided and is available also for conveying patients from their homes to other hospitals.

Dr. Jessel reports as follows on the year's work at the hospital :—

The past year has been one of steady progress, and the hospital is now taking its natural place as an established institution for the treatment of tuberculous men. This is shown by the steadily increasing average duration of stay of patients which last year amounted to 25 weeks—a record for the hospital—and by the frequent expression by patients of preference for Peel Hall.

It is gradually becoming realised that a tuberculosis hospital need be no more dreaded than any other hospital, and, as seeing is believing, visitors are always encouraged. An outstanding event of the year was the visit of some hundreds of local residents during the Little Hulton Health Week, but many other interested visitors were received, including a deputation from the Durham County Council, and the Director of Public Health of the Government of Bombay. All these expressed their appreciation of what they saw.

The improvement of the grounds has been steadily continued and some thousands of young trees have been planted in the field fronting Armitage Avenue. There are ornamental and vegetable

gardens, bowling and putting greens, and a tennis court for the staff. Pigs and poultry are also kept.

The methods of dealing with patients, described in previous reports, which have proved so successful in maintaining a cheerful and healthy atmosphere, have been maintained and refined. All patients are put to rest in bed on admission, and when the temperature has subsided, a system of graduated useful hobby-exercises is brought into operation. The hobby-exercises undertaken include various activities in the gardens, greenhouses, garage, joiner's shop, cobbler's shop, woodshed, and poultry runs, as well as painting, window cleaning, etc. The usual Christmas production of the hospital magazine *Our Mag* by the patients was a great success. A patients' social club has been inaugurated and its work in the direction of mutual entertainment has justified the experiment.

All the above activities may be interpreted as the modern development of the sanatorium principle for the chronic and advanced cases that the hospital mainly receives.

Developments in the provision of more specialist treatment have also been attempted on the lines of the old-established London hospitals for chest diseases. They were rendered possible by the provision of an X-ray apparatus last summer, and gradual progress in this direction may be anticipated. Where patients do not improve as a result of strict bed-rest, the utilisation of one of the many possible special measures should be considered, and during the last few months trial has been made of the following :—(1) Sanocrysin, (2) Jenkin's Antigen, (3) artificial pneumothorax, including gas replacement in pleural effusion, and (4) Lipiodol. (Nos. (1) and (2) are dealt with in the chapter on new methods of treatment, page 22; Nos. (3) and (4) with illustrative skiagrams, are dealt with overleaf.) It must, of course, be understood that in a small hospital only a few cases are suitable for any particular special treatment, e.g., for artificial pneumothorax. Still, enough has been said to indicate the spirit of the place and to show that patients can receive such skilled treatment as their condition warrants, apart from the advantages of careful nursing and the removal of a potent source of infection from their often overcrowded homes.

A number of combined cases requiring aspiration or other special treatment were as usual dealt with. These included pulmonary tuberculosis complicated by tuberculosis of the spine, hip, ankle, glands, testicles, etc.

There is no reason why a pulmonary hospital should not take its place in the public esteem along with other hospitals. True it is that some deaths must occur, but this is unavoidable under any circumstances, and it is becoming realised that if the inevitable must happen, let it take place under the best possible conditions. In 1928 all the patients whose cases reached a fatal termination remained until death at the express desire of themselves or their families, and such a change of public attitude is noteworthy. It remains to add that in the effort to create and maintain a hospital of high grade at Peel Hall, I am indebted to the County Tuberculosis Committee and to the Central Tuberculosis Officer for generous provision of the facilities and improvements for which I have asked, and to the matron, sister and nursing staff for their whole-hearted and loyal support.

Artificial Pneumothorax.—The provision of an X-ray apparatus at Peel Hall, in 1928, has rendered possible the utilisation of artificial pneumothorax as a method of treatment, and six patients have received or are receiving such treatment. The cases selected were those in which the disease was mainly unilateral, and in a small hospital it is the exception rather than the rule to find cases where the disease is not too widespread. (For example, see skiagrams numbered A.1. and A.2.).

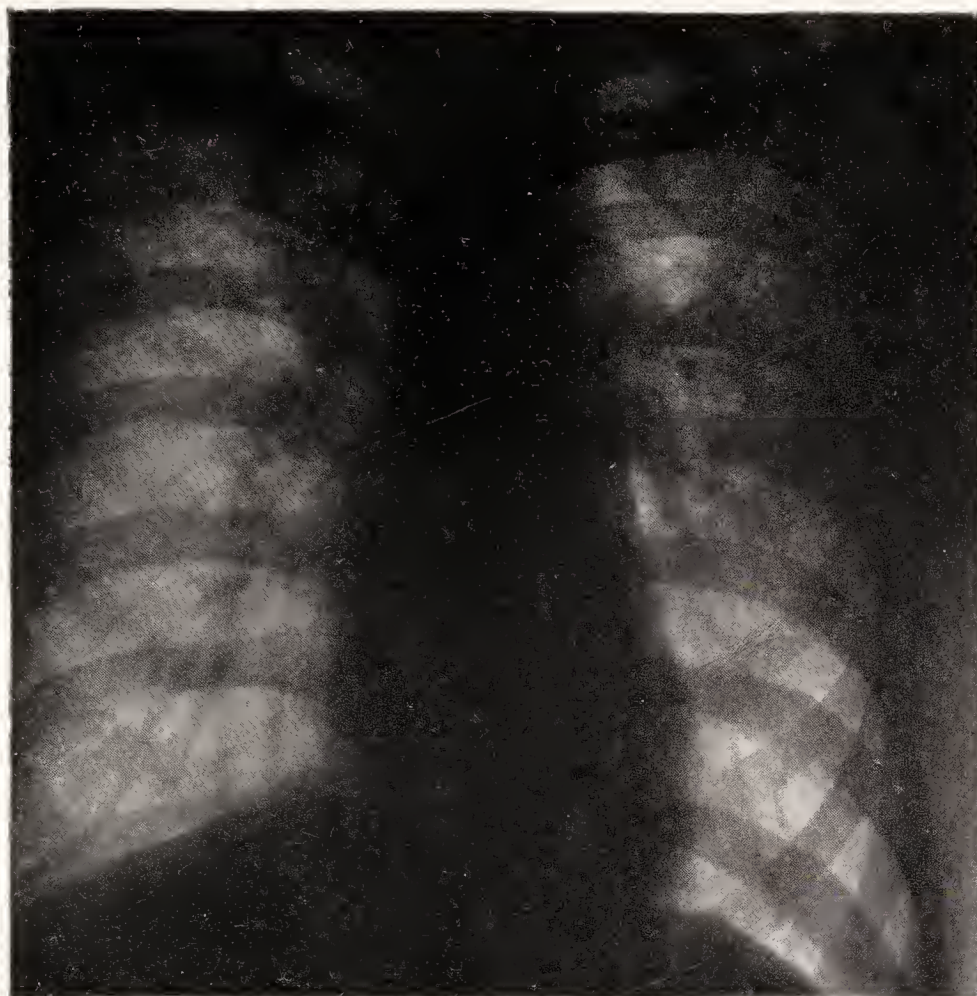
Two of the patients developed pleural effusion with high fever during the course of treatment, but the temperature subsided after gas replacement of the fluid, repeated as was necessary. (For example, see skiagrams numbered A.3., A.4., A.5., and A.6.).

Some unilateral cases have done well at the hospital under ordinary sanatorium treatment, and the use of artificial pneumothorax has been commenced in order to discover at first hand whether similar types of patients can do better under the latter treatment. Admittedly the number in whom the treatment can be successfully carried out is few, but if in, say, the young adults, whose prognosis is in general less favourable than at older ages, it is thereby possible to check the spread of the disease, the time and trouble involved in giving refills for two or three years will have been well worth while.

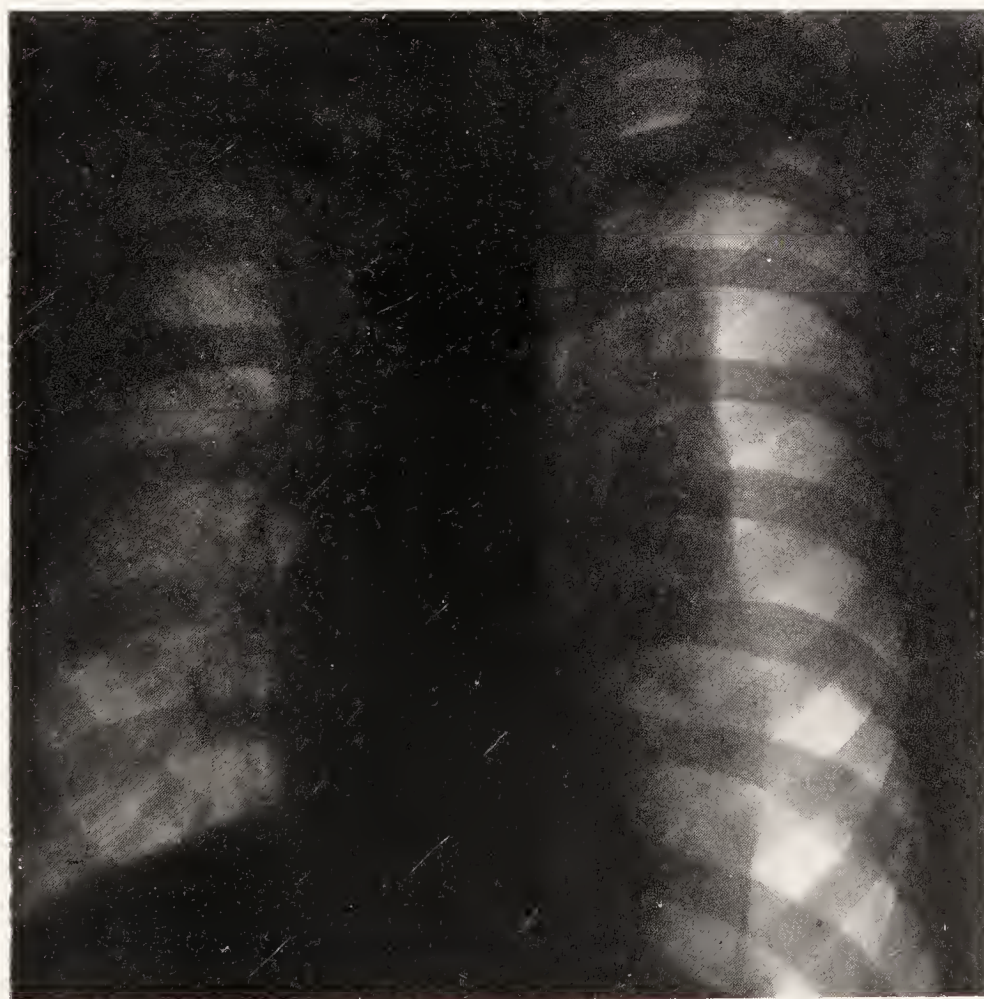
Lipiodol.—Now that there is an X-ray apparatus at Peel Hall it has also been possible to use Lipiodol as an aid to diagnosis. Lipiodol is a preparation of iodine and poppy-seed oil, and in four cases I have found it useful in diagnosing suspected cases of bronchitis and bronchiectasis. The Lipiodol was injected through the crico-thyroid membrane, and a skiagram was taken immediately afterwards. The Lipiodol, being opaque to the X-rays, gave a good idea of the course and condition of the suspected bronchi and bronchioles.

Illustrative skiagrams of two cases are here given (see skiagrams numbered L.3. (a) and (b), and L.4. (a) and (b)).

SKIAGRAMS ILLUSTRATING ARTIFICIAL PNEUMOTHORAX.



SKIAGRAM A.1.—Patient J.M., male, aged 29. Labourer in chloride works. Skiagram, taken on 11/6/29 a few days after admission to Peel Hall and before induction of artificial pneumothorax, shows extensive mottling in left upper half and right apex. Sputum positive. Physical signs: supra-clavicular hollow, impaired percussion note right front and both sides back; occasional crepitations. Duration of illness over 12 months.



SKIAGRAM A.2.—Same patient. Skiagram taken on 27/6/29 after induction of artificial pneumothorax. Shows distinctly the collapse of the left lung. Patient still undergoing treatment at Peel Hall; patient afebrile; up and about.

[Skiagrams taken at Peel Hall Pulmonary Hospital.]

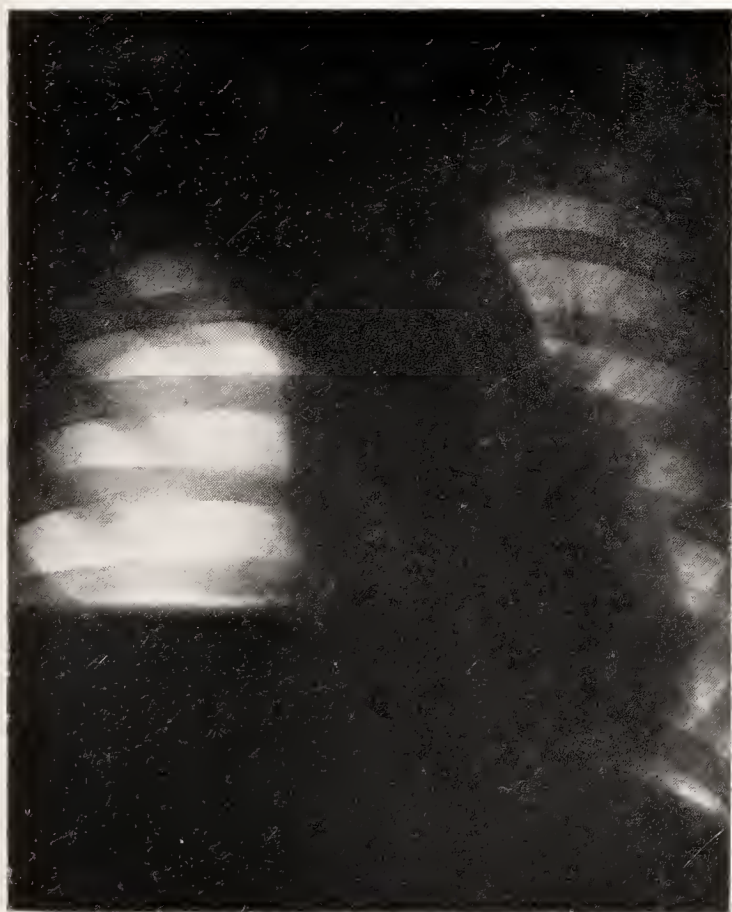
SKIAGRAMS ILLUSTRATING ARTIFICIAL PNEUMOTHORAX WITH PLEURAL EFFUSION.



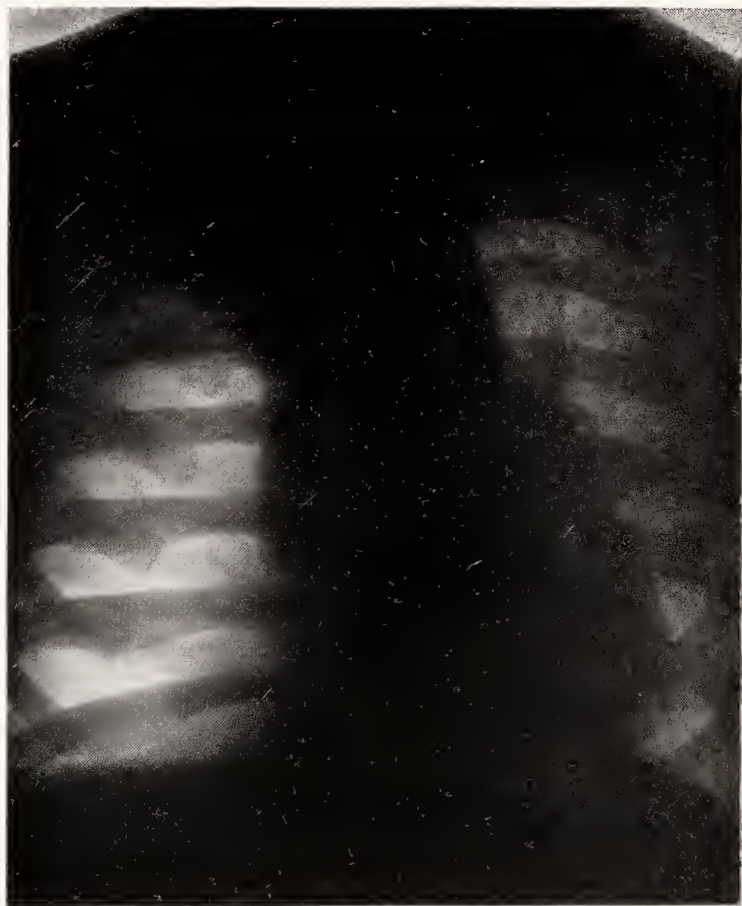
SKIAGRAM A. 3.—Patient T.H., male, aged 22. Occupation: surface worker at coal mine. Skiagram taken (before induction of artificial pneumothorax) on 9/1/29—six weeks after admission to Peel Hall. Skiagram shows dense mottling in right upper lung; left lung fairly clear. Sputum positive. Duration of illness three months at date of admission. Physical signs: dulness and crepitations in right upper lobe.



SKIAGRAM A. 4.—Same case T.H. Skiagram taken 4/3/29 after induction of artificial pneumothorax. Good collapse of right lung obtained except at apex.

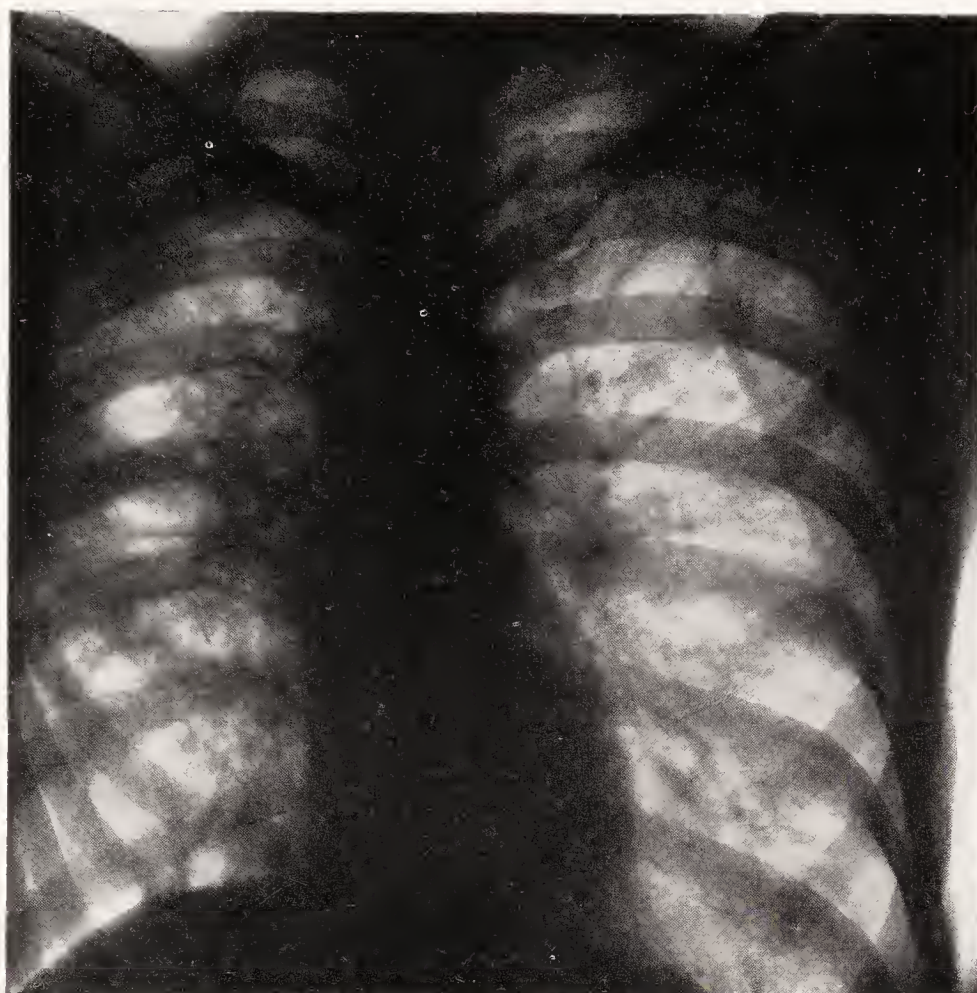


SKIAGRAM A. 5.—Same case T.H. Skiagram taken 5/4/29 (four weeks after induction) shows development of pleural effusion in right lung during course of artificial pneumothorax treatment.



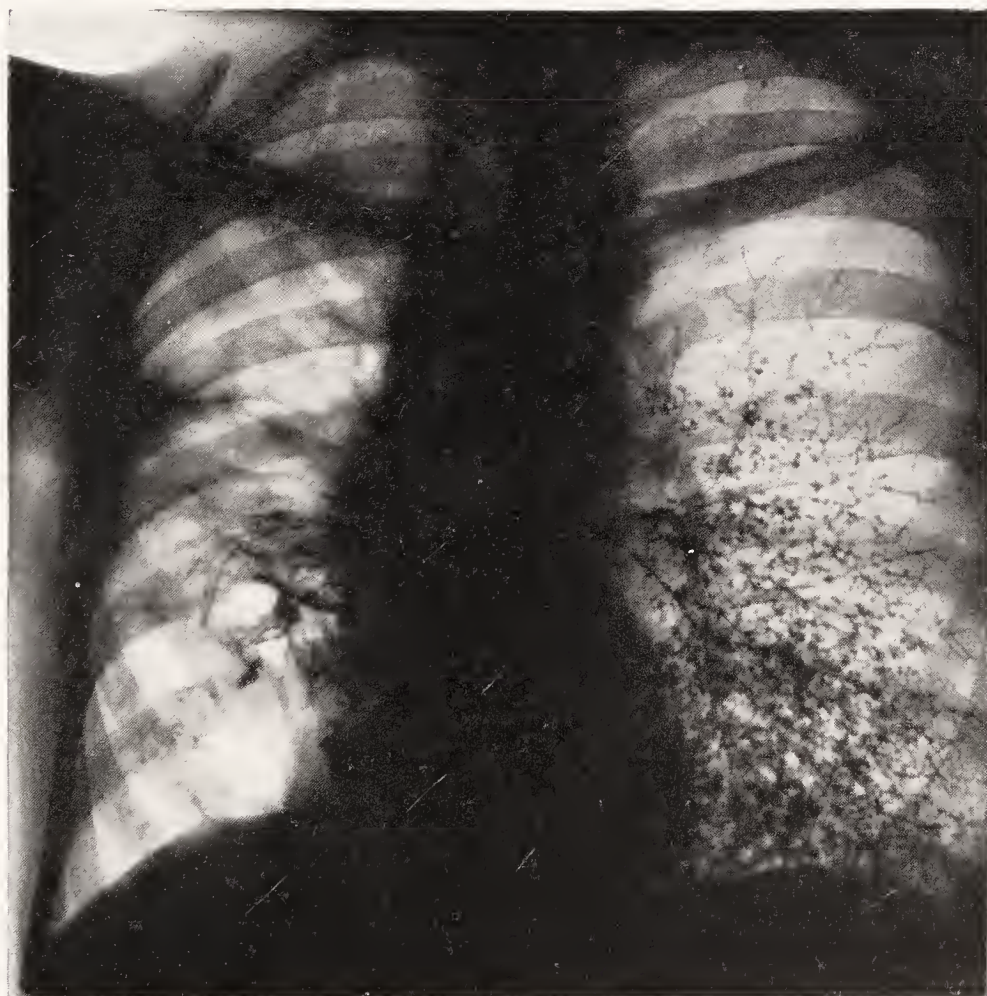
SKIAGRAM A. 6.—Same case T.H. Skiagram taken 15/4/29 (six weeks after induction) showing effect of gas replacement of pleural effusion on right side. Replacement was done four times; amounts of fluid varying from 10 oz. to 35 oz. were removed. Patient in bed slightly febrile, with small amount of fluid. Treatment being continued 14/8/29. [Skiagrams taken at Peel Hall Pulmonary Hospital.]

SKIAGRAMS ILLUSTRATING THE USE OF LIPIODOL (CONTD.).



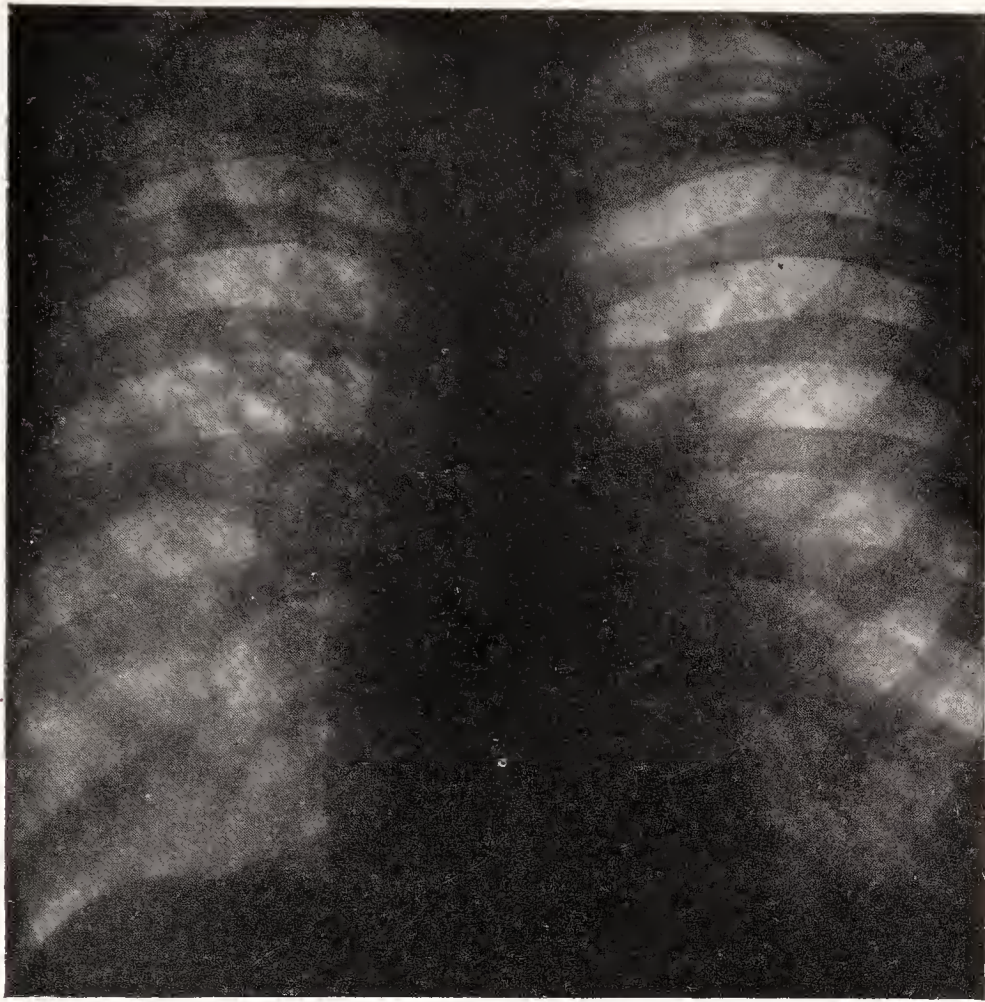
SKIAGRAM L. 3.—(a) Patient J.M., male, aged 47. Discharged from Army in 1919 with pension for pulmonary tuberculosis. Has been in tuberculosis institutions on three occasions (1925, 1927, and 1929). Sputum repeatedly negative. Last admission: Peel Hall Pulmonary Hospital, 11/1/29. Chief symptoms: continuous vomiting with much foul sputum for several days; physical signs: supra-clavicular hollow and dullness right chest with blowing breath sounds. Temperature previously irregularly febrile became normal.

X-ray taken 6/3/29 (before injection of Lipiodol) with patient placed face downwards on table. Shows fibrosis of right middle zone and (?) dilated bronchi.

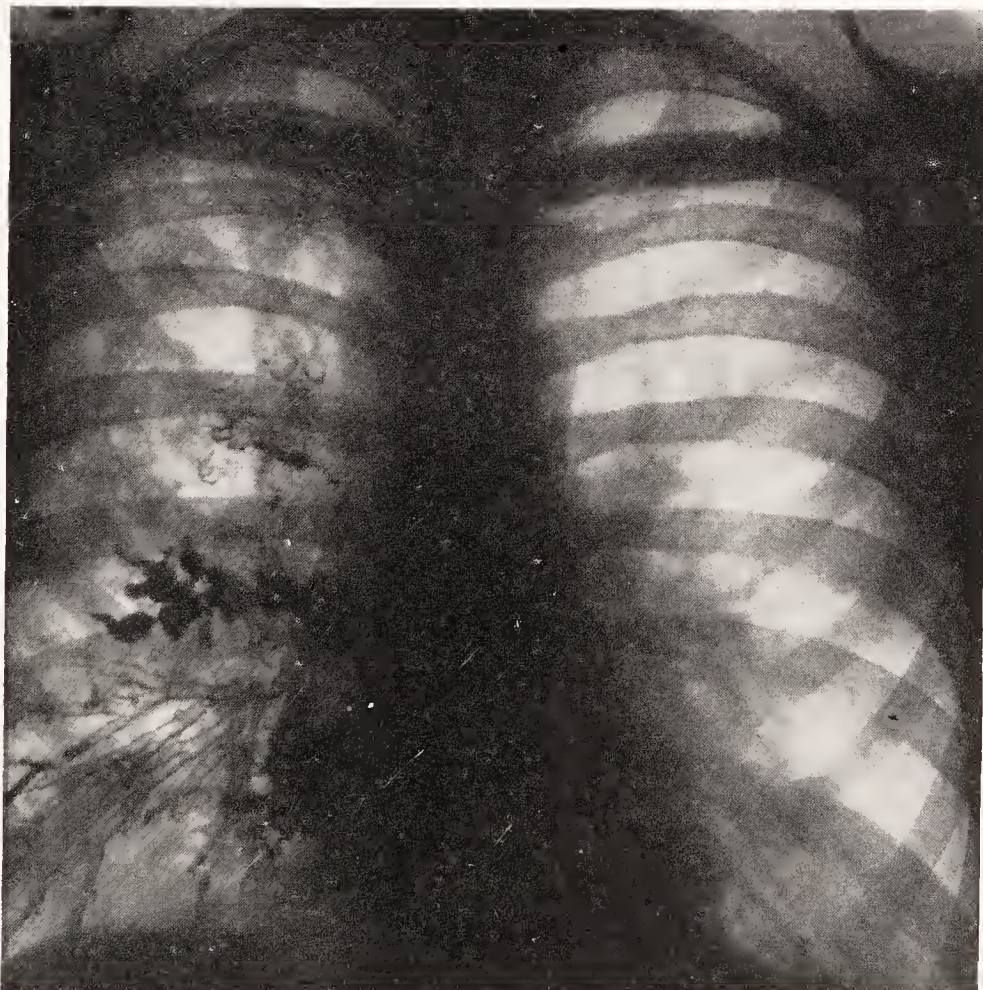


(b). Same patient, taken on 25/3/29 immediately after injection of 20 cc. of Lipiodol. Shows dilatation of bronchi. No evidence of active tuberculosis. Diagnosis bronchiectasis.

[Skiagrams taken at Peel Hall Pulmonary Hospital.]



SKIAGRAM L. 4.—(a) Patient S.T., male, aged 28. Case notified by medical attendant as tuberculosis but tuberculosis officer suspected bronchiectasis and decided to send patient to Peel Hall for observation. Admitted Peel Hall 27/7/29. History showed chest trouble on and off since childhood; patient had pneumonia six months before examination by tuberculosis officer. Condition on admission: cough, expectoration, shortness of breath; a good deal of foul expectoration, breath foetid, and there was clubbing of fingers. Physical signs: right lung—dulness on percussion, with dry crepitations all over; left lung—dulness and blowing breath sounds lower lobe. Weight 7st. 9lbs. Sputum negative. X-ray taken 7/1/29 before injection of Lipiodol shows general reticulated appearance over right lung with patch of soft mottling below the clavicle. Heart of good size and somewhat deviated to the right. Left lung fairly clear.



(b). Same patient taken 31/7/29 immediately after injection of 20 c.c. of Lipiodol. Skiagram shows marked dilatation of bronchi in the right middle and lower zones. Diagnosis: bronchiectasis. Discharged from Peel Hall 7/8/29.

[Skiagrams taken at Peel Hall Pulmonary Hospital.]

(7) RUFFORD PULMONARY HOSPITAL.

Visiting Medical Superintendent :

C. W. Laird, B.A., M.D. (Dublin), D.P.H. (Liverpool).

Matron : Miss E. Moseley.

The County Council acquired, on the 18th October, 1920, Rufford New Hall, situated on the west side of the main road from Preston to Ormskirk, together with 128 acres of land adjoining the Hall. Under pressure from the Ministry of Health, a scheme was prepared for using the Hall and land for discharged sailors and soldiers, and the scheme included training the patients in several occupations. Some additional land was also obtained with a view to training in agricultural work but all this, however, was abandoned in 1921 by order of the Ministry of Health, owing to the financial stringency.

The premises were first used as a pulmonary hospital on the 7th April, 1926, providing accommodation for 52 patients.

The hospital serves as far as possible the districts in West Lancashire, so that relatives and friends will have reasonable facilities for visiting.

A motor ambulance has been provided, available for the hospital and also for conveying County patients to other hospitals—often involving journeys of 100 miles.

Dr. Laird reports as follows on matters relating to the treatment of patients and the administration of the hospital :—

During 1928, 123 patients were admitted to the hospital, 101 were discharged and 31 died. Numerous aspirations were performed, as required, in the case of patients suffering from non-pulmonary tuberculosis. These were chiefly spinal cases which had developed abscess formation. Approximately eight beds are devoted to such cases in two wards on the ground floor and under the verandah ; another eight beds on this floor are occupied by combined pulmonary and non-pulmonary, or by negative pulmonary cases. Thirty-six beds upstairs are in occupation by pulmonary cases with positive sputum—many of them of an advanced character. Of all the cases in hospital, only about 30 per cent. on an average, are ambulant, and consequently both nursing and medical duties are more exacting than they would otherwise be. Patients and staff, however, remain wonderfully cheerful in spite of their respective trials.

The lives of the patients as far as possible have been brightened by various means. Not least successful in this respect have been the films shown during the winter months at intervals of every few weeks. Entertainments of this kind have been made possible by the purchase of a Kodascope and screen at a total cost of £46, towards which a substantial grant was made at the instance of the County Tuberculosis Committee. A further annual allowance was made by the Committee towards the cost of hiring films through the Kodascope Library, an enterprising and useful institution organised by Messrs. Kodak, Ltd. The expenditure of this money has been amply justified, judging by the appreciation these entertainments have aroused, and by the greater contentment which has prevailed within the hospital generally as a result of the relief of monotonous routine.

An official visit was paid in the summer by Col. C. J. Trimble, Chairman, and Mr. E. Boothman, Vice-Chairman of the County Tuberculosis Committee. Both of these gentlemen expressed satisfaction, after making an inspection of the hospital and the grounds, and seemed agreeably impressed with what they saw.

The thanks of patients and staff are tendered to the British Red Cross Society and to private donors for consignments of library books and miscellaneous literature, as well as to the Committee for their kindness in giving the usual grants for books and periodicals, and towards the extra Christmas fare.

The beauty of the hospital grounds has been carefully preserved, much personal attention having been devoted to this and to the agricultural and horticultural sides by the Central Tuberculosis Officer.

Artificial Pneumothorax Treatment.

Details have been submitted for the purpose of this report of sixteen positive cases of pulmonary tuberculosis in females who underwent treatment by artificial pneumothorax while in Rufford Hospital, and who were patients in residence there during 1928. The majority of these represented people in the more advanced stages of the disease.

Unfortunately, the employment of this beneficent remedy is not so simple as it may appear: the lung does not always contract as one would desire; the patient is not always suitable temperamentally or physically to undergo this form of treatment; the extent of his disease when he is first seen may be such as to render it impracticable or inopportune; the facilities for obtaining, giving or maintaining the treatment are not always to hand. Thus the number of cases

which can be satisfactorily treated by artificial pneumothorax is subject to much limitation, so that this form of treatment must be regarded as selective.

Artificial pneumothorax has been justly described as the only material advance in the treatment of pulmonary tuberculosis during the last half-century. Those who have had any lengthy experience of it as a remedy in suitable cases would not care to be without it from time to time. Like other remedies it is not unattended with disappointment and even failure, but the compensating satisfaction and success experienced by physicians and patients alike is too striking to be set aside on this account. Opposition to its adoption, the prejudice commonly observed in the case of all things not thoroughly tried, is still in evidence; but more and more in leading centres throughout this country and on the Continent has artificial pneumothorax come to stay.

When artificial pneumothorax first came into vogue it was usually reserved for the more advanced type of case, and even to-day opinion differs as to the desirability of resorting to it in the early one. When in advanced cases its efficacy is sufficiently proved, one feels that its more extended use in the earlier stages of the disease would increase the percentage of successful results so as to overcome much prejudice and adverse criticism.

The eagerness of patients to undergo and to continue for long periods this form of treatment, after personal observation of its good effect in others around them, is in itself a strong recommendation; so much so that little persuasion is required, as a rule, to induce them to give it a trial.

Inductions and refills are carried out under local anæsthesia, effected by superficial and deep injection of 2 per cent. Novocain and Adrenalin, and rarely is any pain or discomfort experienced during the operation. It has happened before now that the refill was completed before the patient realised that it had begun.

At Rufford it has been found advantageous in most cases to have the patient seated rather than recumbent, and to puncture the posterior thoracic wall about the level of the 6th or 7th space in the scapular region. Otherwise, there is nothing in the technique employed which calls for special mention.

As regards complications occurring in the course of treatment—effusions at first were conspicuously absent, but later were seen with average frequency. These did not seem to bear any special relationship to the amount of gas given, and the latter varied considerably

with the individual and the extent of adhesions, being made to depend on the pressures obtained. Large amounts were given in some cases where chest capacity was above the average and yet no effusion followed, while in other cases effusion was seen where even small amounts of air had been introduced.

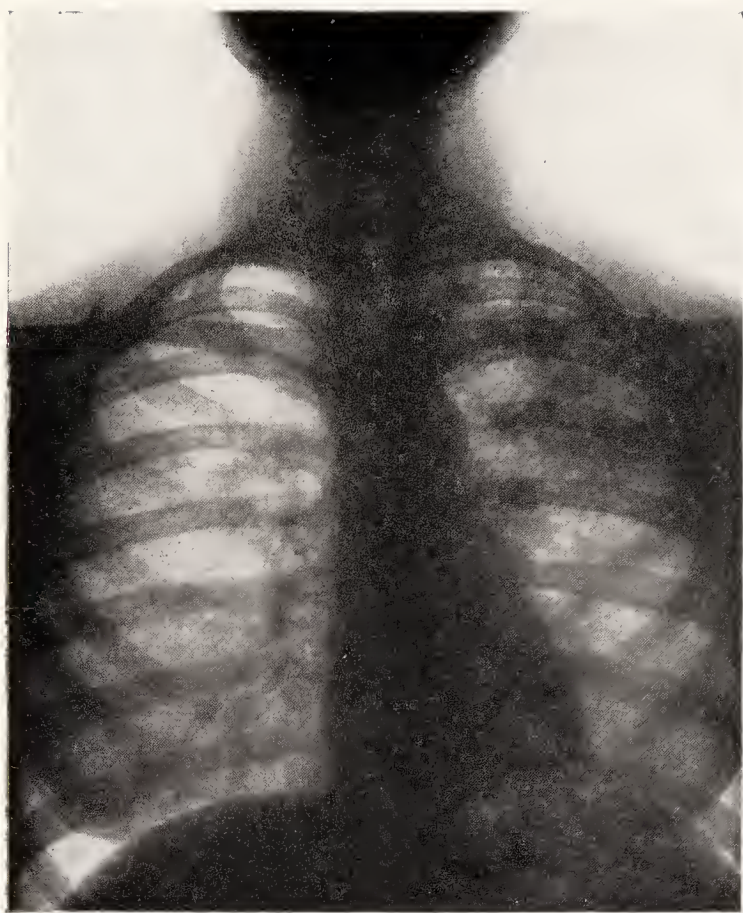
In two cases double artificial pneumothorax (i.e. of both lungs) was maintained simultaneously. (For example, see skiagrams numbered R.1. to R.7. here inserted.)

The following Table 26 contains particulars of 16 female positive cases who received artificial pneumothorax treatment whilst resident in Rufford Hospital during 1928 :—

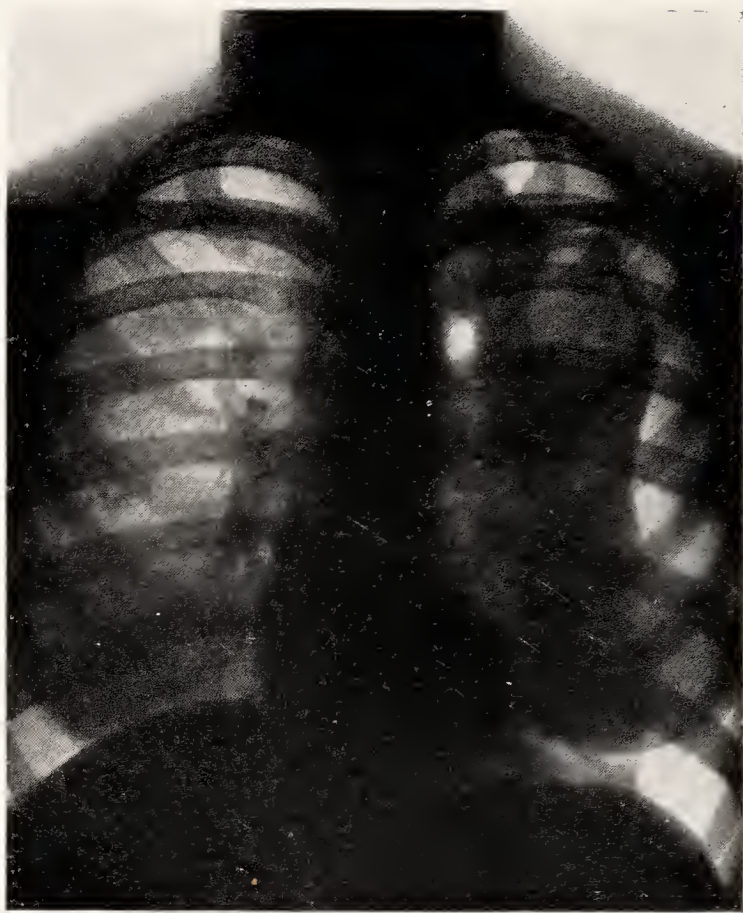
Case No.	Age.	Sputum.		Condition in June, 1929.
		On Admission.	On Discharge.	
25325	15	Positive	None	Improved. Fit for work. Still receiving refills.
26672	35	„	Positive	Died 16th September, 1928.
18158	24	„	Negative	Keeping well. Unfit for work.
27819	27	„	—	Still in Rufford.
26566	30	„	—	Still in Rufford.
25509	20	„	Negative	Improved. Working. Refills discontinued July, 1928. Patient unwilling to continue.
26656	15	„	Negative	Keeping well. Working.
27893	26	„	None	Improved. Unfit for work. Still receiving refills.
27062	34	„	—	Died in Rufford 31st July, 1928.
26556	30	„	Positive	Removed to St. Helens.
24306	17	„	Positive	Treatment ceased at dispensary after effusion. Re-admitted to Rufford 15th October, 1928 ; still in June, 1929.
28186	16	„	—	Still in Rufford. Bilateral pneumothorax (simultaneous).
27383	20	„	Positive	Bilateral pneumothorax (simultaneous). Died 23rd May, 1929.
27601	35	„	Negative	Stationary. Fit for work and working. Broad basal adhesions. Treatment discontinued at patient's request.
26497	21	„	None	Very well. Fit for work but not working. Still receiving refills.
26705	40	„	Positive	Unsatisfactory. Unfit for work. Refills impracticable owing to adhesions. Relapse after influenza.

RUFFORD PULMONARY HOSPITAL.

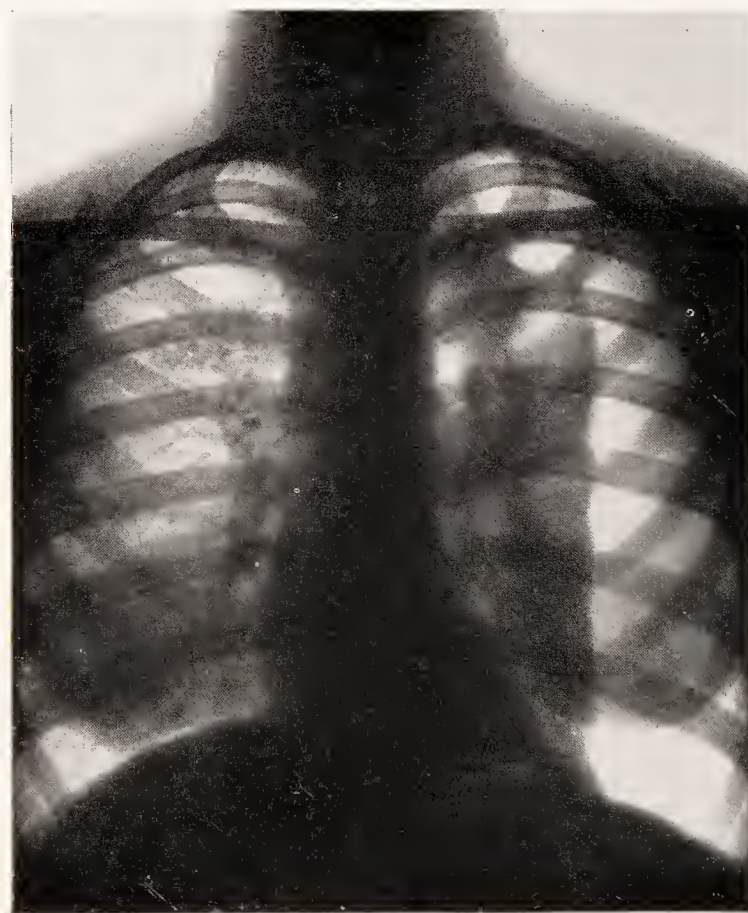
SKIAGRAMS ILLUSTRATING SIMULTANEOUS BI-LATERAL
ARTIFICIAL PNEUMOTHORAX.



SKIAGRAM R. 1.—Patient L.M.S., female aged 16; pulmonary tuberculosis, sputum positive. Physical signs: impaired percussion note over left upper lobe; duration of illness five months. Admitted to Rufford Pulmonary Hospital on 26/9/28. Condition of lungs on 17/10/28 before induction of artificial pneumothorax in left lung; skiagram shows extensive disease involving two-thirds of the left lung and the central portion of the right but in a lesser degree.



SKIAGRAM R. 2.—Condition after second refill on 29/10/28 (12 days after induction). Skiagram shows large cavity on left side and pleural adhesion. The edge of the collapsed left lung is plainly visible

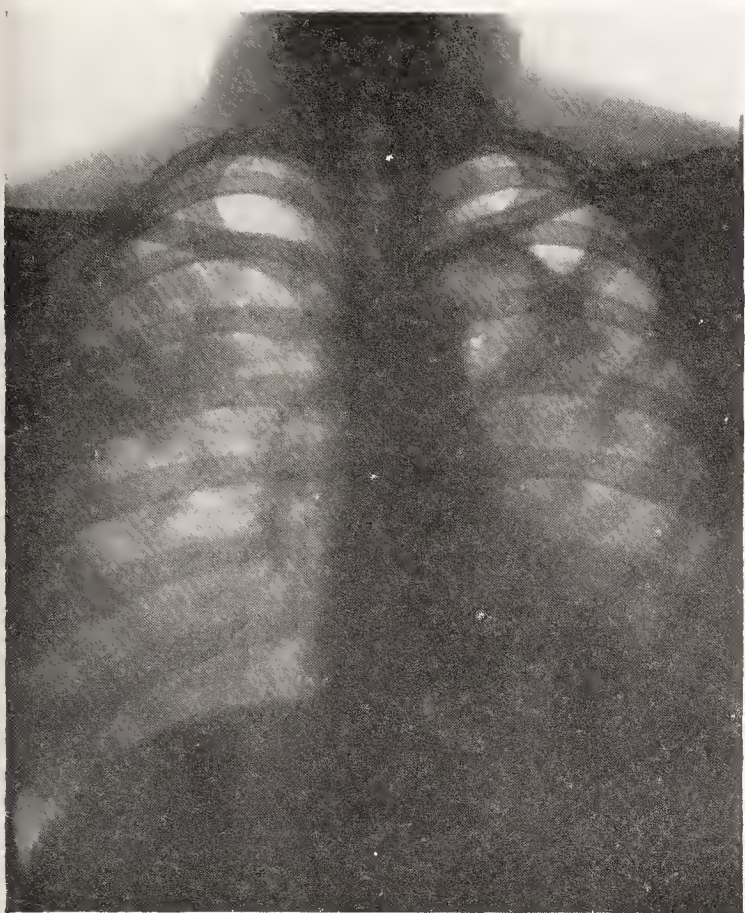


SKIAGRAM R. 3.—Condition on 13/11/28 (four weeks after induction). The cavity in the left lung has become much smaller.



SKIAGRAM R. 4.—Taken on 29/1/29 (15 weeks after induction). Shows the disease spreading from left to right side, as appeared more definitely later. Cavity on left side still discernible, but tending to decrease in size.

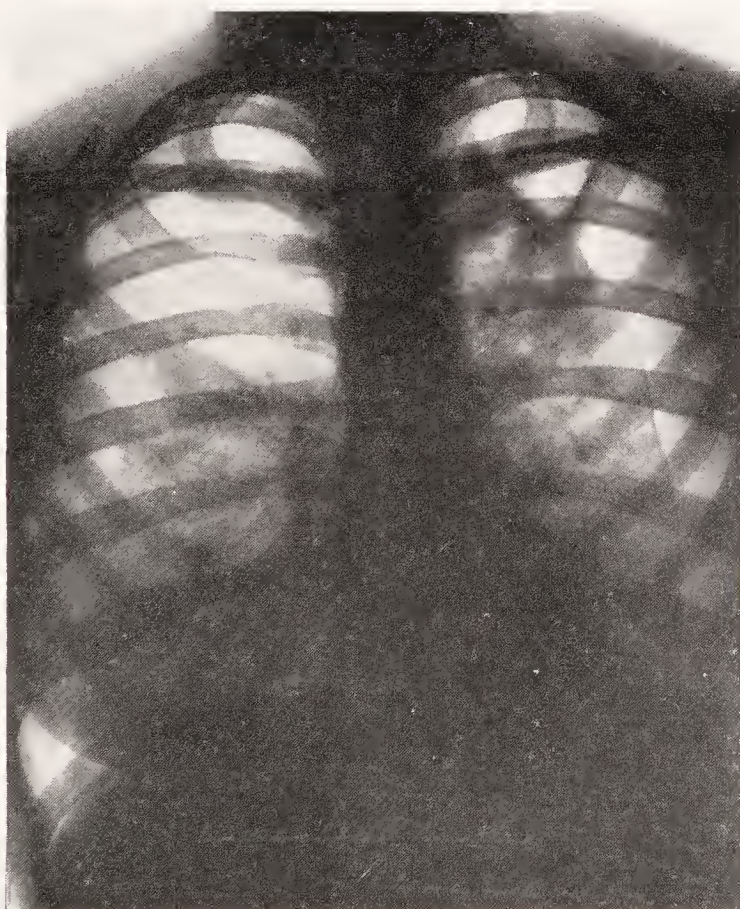
[Skiagrams taken at Rufford Pulmonary Hospital.]



SKIAGRAM R. 5.—Taken on 1/5/29, 28 weeks after induction, and before artificial pneumothorax was performed on right side. The skiagram shows distinct disease in the right upper lobe. Cavity on left side has further diminished.



SKIAGRAM R. 6.—Taken on 9/5/29, 29 weeks after induction in left lung, and eight days after induction in right lung. A sub-apical cavity on right side is now apparent.



SKIAGRAM R. 7.—Taken on 13/7/29 (34 weeks after induction in left lung and 10 weeks after induction in right lung). Shows bi-lateral pneumothorax and the cavities on both sides almost obliterated. The patient is progressing favourably and continuing treatment at the hospital. At the end of July, 1929, her general condition was described as good; she had gained 17 lbs. in weight; sputum was very little (but still positive); appetite good; and she was able to walk $1\frac{1}{2}$ miles per day.

[Skiagrams taken at Rufford Pulmonary Hospital.]

(8) WITHNELL PULMONARY HOSPITAL, NEAR CHORLEY.

Visiting Medical Superintendent :

B. MacPhee, M.B., Ch.B. (Glas.), D.P.H. (Camb.).

Matron : Miss D. Willman.

The County Council in December, 1924, purchased Withnell Hall (including two cottages, outbuildings, and 37 acres of land) situated on the main road from Blackburn to Chorley, in order to replace the Bull Hill Pulmonary Hospital, Darwen, which at the instance of the Ministry of Health ceased to be used for the treatment of tuberculosis. The work of adapting the Hall and the provision of a new block for patients was completed in 1927, the first patient being admitted on 15th August. Accommodation is provided for 51 male patients (28 in cubicles, 18 in wards and 5 in shelters). The hospital serves mainly Dispensary Area No. 2 (East Lancashire).

There are also provided on the estate three houses for employees—two semi-detached new houses and one house converted from two cottages included in the purchase.

By arrangement with the Withnell Urban District Council the sewage from the hospital is turned into the public sewer.

Dr. MacPhee reports as follows :—

The work in the institution has been carried on smoothly throughout the year.

During the year 106 patients were admitted, 71 were discharged, and 35 died. Included in the 106 admissions are 8 patients sent in for observation and treatment.

Photographs taken by X-rays numbered 194, and 76 screenings were made. Examinations of sputum are carried out in the laboratory at the institution, and during the year 691 specimens were examined for tubercle bacilli with the following results : Positive 284, negative 407.

The grounds of the institution have been greatly improved since the opening.

A certain amount of suitable work has been found for all patients who are fit to do it. The institution was most fortunate last year in securing the services of Mr. Kelly (who was formerly a patient at the institution) as joiner-instructor. He has interested a number of

patients in joinery, and numerous useful articles have been made for the benefit of the institution.

The patients are well catered for in amusements. The billiard table has been well patronised, and good use made of the library, whilst patients who are up and about spend many pleasant hours on the croquet lawn during the summer months. Concerts have been given at intervals, and were much appreciated by both patients and staff, and I have to thank those who kindly gave of their time. At the beginning of the year a wireless set was installed and has proved an acquisition. All the downstairs cubicles were fitted with ear-phones, one pair for each patient, and loud speakers were installed in the house for the use of the staff.

(9) WRIGHTINGTON HOSPITAL, PARBOLD.

The County Council, in November, 1921, purchased Wrightington Hall, outbuildings and estate of 159 acres, with a view to utilising it eventually for the provision of accommodation for children and adults.

The Hall is situated close to the high road between Standish and Parbold, about six miles north-west of Wigan, and stands at an altitude of 300 feet above sea level.

Plans were prepared in 1921 for the adaptation of the buildings, but under instructions from the Ministry of Health no work was commenced, and the scheme remained in abeyance until early in 1926, when the County Council approved generally of proposals to adapt the Hall and erect buildings to accommodate 226 patients—80⁶ beds for adults and 146 for children. The Ministry of Health in May, 1927, agreed to the proposals of the Council, and plans satisfactory to the Ministry have been completed, receiving the approval of the Council in August, 1927. The Ministry have intimated that they are prepared to recommend a Government grant of £180 per bed towards the capital expenditure, which is estimated to be £129,520. A tender for the work has been accepted, and building commenced on the 13th August, 1929.

A description of the site and the proposed buildings was given in the report for 1926.

A bird's-eye view of the proposed hospital is printed as a frontispiece of the report (opposite page 11).

X.—DENTAL TREATMENT.

Patients eligible for dental treatment are those who, in the opinion of the medical superintendent or tuberculosis officer, are unable to derive full benefit from their treatment for tuberculosis owing to defective teeth. Patients already covered by dental schemes of other bodies, e.g., school children and tuberculous pensioners, are excluded from benefit.

The following statement shows the dental work carried out during 1928, under the scheme approved by the County Council:—

TABLE 27.

	At County Council Sanatoria.		At other Sanatoria and Hospitals.	At Patients' Homes.	Total.
	High Carley	Elswick			
Total No. of individual patients who received dental attention (any form)	184	78	89	22	373
New Dentures provided—					
(a) Complete sets	33	6	38	13	90
(b) Partial sets	17	14	22	6	59
Repairs to Dentures	19	1	15	3	38
No. of Extractions	330	189	455	295	1,269
No. of Fillings	62	25	1	3	91
No. of Scalings and Cleanings	2,318	212	9	1	2,540
No. of other Operations	363	60	—	—	423

The dental scheme, considering the benefit derived by the patients, has proved economical, and is fully justified.

XI.—SANATORIUM TREATMENT.

Under the County scheme patients are not limited to any definite period for sanatorium treatment—the length of stay depending on the recommendation of the medical superintendent. Cases likely to become quiescent have always been allowed as long a period of treatment as considered necessary on medical grounds. *Excluding patients leaving prematurely for other than medical reasons the average duration was nearly 5½ months.*

The following Table 28, summarising the *immediate* results of sanatorium treatment of patients discharged in 1928, has been prepared from the information as to the condition of patients given by medical superintendents in their discharge reports :—

Classification on Admission to the Institution.*	Condition at time of discharge.	Duration of Residential Treatment in the Sanatorium.												Total Patients Dis- charged.	
		Under 3 months.			3—6 months.			6—12 months			More than 12 months.				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
T.B. Minus.	Quiescent	31	12	4	25	18	22	5	13	12	4	2	2	150	52·8
	Improved	22	10	1	17	9	9	5	3	16	4	—	5	101	35·6
	No material improvement	9	2	2	2	2	—	1	2	2	—	—	1	23	8·1
	Died in Sanatorium ...	4	2	1	—	1	—	1	1	—	—	—	—	10	3·5
T.B. Plus 1 (Early)	Quiescent	9	4	—	5	9	1	8	3	2	1	3	—	45	36·0
	Improved	16	4	—	14	4	—	15	4	—	—	1	—	58	46·4
	No material improvement	4	2	—	2	2	—	5	2	—	1	1	—	19	15·2
	Died in Sanatorium ...	—	—	—	1	—	—	1	—	—	—	1	—	3	2·4
T.B. Plus 2 (Inter- mediate)	Quiescent	1	2	—	6	5	—	3	5	—	2	—	—	24	8·9
	Improved	34	11	—	40	17	—	22	8	—	5	8	—	145	54·1
	No material improvement	22	15	—	13	11	—	8	8	—	2	1	1	81	30·2
	Died in Sanatorium ...	6	4	—	1	3	—	—	1	—	1	2	—	18	6·7
T.B. Plus 3 (Ad- vanced)	Quiescent	—	—	—	—	1	—	—	—	—	—	—	—	1	2·6
	Improved	6	—	—	3	2	—	2	—	—	1	—	—	14	36·8
	No material improvement	3	2	—	3	2	—	3	1	—	—	—	—	14	36·8
	Died in Sanatorium ...	3	2	—	2	1	—	—	—	—	—	1	—	9	23·7
	Total	170	72	8	134	87	32	79	51	32	21	20	9	715	—
Observa- tion for purpose of diagnosis.		Under 1 week.			1—2 weeks.			2—4 weeks.			More than 4 weeks				
	Tuberculous	—	1	—	—	—	1	—	—	1	4	4	2	13	35·1
	Non-tuberculous	—	—	—	—	—	—	1	1	2	5	6	6	21	56·7
	Doubtful	—	1	—	—	—	1	—	—	—	—	—	1	3	8·1

GRAND TOTAL 752

* Classification in accordance with Memorandum 37/T of the Ministry of Health.

These cases are distinct from those who received treatment in a pulmonary hospital—such treatment is granted almost solely for purposes of education or isolation, and no useful purpose is attained in trying to show curative results.

XII.—TREATMENT IN PULMONARY HOSPITALS.

The treatment of advanced and infectious cases at pulmonary hospitals is one of the best measures for preventing the spread of infection. The County scheme provides for the treatment, on the recommendation of the tuberculosis officers, of patients in appropriate institutions : (a) in sanatoria for early and intermediate cases ; and (b) in pulmonary hospitals near to the patients' homes for advanced cases of consumption unable to be isolated or treated properly at home.

In the pulmonary hospitals, also, patients are admitted for the purpose of isolation, occasionally for observation in regard to diagnosis, and particularly for education in general methods of hygiene which, when the patients return home, can be applied in suitable cases, much more effectively after a short period of institutional treatment.

In four of the five dispensary areas, one of these pulmonary hospitals is in the charge of the consultant tuberculosis officer, a very useful arrangement because patients come to these hospitals from the area administered by the tuberculosis officer, who is, therefore, conversant with the home conditions. Further, it is of great advantage to the tuberculosis officer, because it provides the means of applying certain forms of treatment and of carrying out valuable clinical and research work.

Other patients from each of the five dispensary areas requiring isolation are accommodated in the pulmonary hospitals (not administered by the County Council) situated in or near the area. In order that the consultant tuberculosis officers may keep themselves acquainted with the cases, arrangements have been made (with one or two exceptions, where only occasional County cases are treated) for the tuberculosis officers to visit periodically the pulmonary hospitals in their area and confer with the medical superintendents on the following matters :—(1) The question of extension of patients' treatment or their return home, having special regard to the home conditions which are known to the tuberculosis officer ; (2) the question as to patients' future treatment ; (3) applications from patients for transfer to other institutions, or for their discharge home, and to settle, where possible, any difficulties or complaints by patients which may arise.

The foregoing working arrangements have enabled the highly infectious cases with unsatisfactory home conditions to remain at the pulmonary hospitals for long periods for the purpose of isolation, and for patients who have made good progress and are capable of light work to be transferred to sanatoria for the continuation of their treatment.

By the Public Health Act of 1925, a County Council now has power to secure the compulsory isolation of infectious cases on the order of the magistrates, but so far it has not been necessary to exercise that power.

Brief particulars are given in the following Table 29 of the 13 pulmonary hospitals available for the treatment of County patients :—

TABLE 29.

Name of Hospital.	Average Number of Beds used.	1928 : Number of Patients—		
		Admitted.	Discharged.	Died.
Burnley	13	28	19	7
Chadderton, near Oldham	44	94	58	34
East Lancashire, Cheshire	3	—	9	2
Eccleston Hall, near St. Helens	5	9	7	4
Heath Charnock, near Chorley	30	70	46	26
Hefferston Grange, Cheshire	5	12	5	4
Marland, Rochdale	3	6	4	2
Peel Hall, Little Hulton	51	128	71	52
Pemberton, Wigan	4	3	4	—
Rufford, near Ormskirk	45	112	75	28
Westhulme, Oldham	2	9	8	4
Withnell, near Chorley	50	106	71	35
Wolstenholme Hall, Norden	25	68	54	19
TOTAL	280	645	431	217

XIII.—TREATMENT OF NON-PULMONARY TUBERCULOSIS.

IMMEDIATE RESULTS OF INSTITUTIONAL TREATMENT AT
GENERAL AND SPECIAL HOSPITALS.

A summary of the condition on discharge of patients treated during 1928 in approved general and special hospitals and in the Manchester and Salford Skin Hospital is given below :—

TABLE 30.

Classification on admission to the Institution.	Condition at time of discharge.	Duration of Residential Treatment in the Institution.												TOTAL	
		Under 3 months.			3—6 months			6—12 months			More than 12 months				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
Bones and Joints.	Quiescent	2	4	3	—	2	6	5	3	7	2	3	22	59	30·9
	Improved	27	18	10	3	2	5	3	4	5	6	5	13	101	52·9
	No material improvement ...	4	6	3	3	—	—	1	—	1	1	—	1	20	10·5
	Died in Institution	3	1	1	—	—	—	—	2	3	1	—	—	11	5·7
Abdominal.	Quiescent	—	—	4	—	—	2	—	1	1	—	—	2	10	16·9
	Improved	6	7	12	—	1	2	—	1	3	—	—	2	34	57·6
	No material improvement ...	1	3	4	—	1	1	—	—	1	—	—	—	11	18·6
	Died in Institution	—	—	3	—	—	—	1	—	—	—	—	—	4	6·8
Other Organs.	Quiescent	1	2	1	—	—	—	—	—	—	—	—	—	4	8·2
	Improved	12	14	1	3	—	2	—	—	1	1	—	—	34	69·4
	No material improvement ...	4	4	1	—	—	1	—	—	—	—	—	—	10	20·4
	Died in Institution	—	—	1	—	—	—	—	—	—	—	—	—	1	2·0
Peripheral Glands.	Quiescent	2	10	17	—	—	1	—	1	2	—	1	1	35	23·9
	Improved	20	30	40	1	1	—	—	1	2	1	—	4	100	68·5
	No material improvement ...	3	—	3	—	—	1	—	—	—	—	—	—	7	4·8
	Died in Institution	3	—	1	—	—	—	—	—	—	—	—	—	4	2·7
	Total	88	99	105	10	7	21	10	13	26	12	9	45	445	—
		Under 1 week.			1—2 weeks.			2—4 weeks.			More than 4 weeks.				
Observation for purpose of diagnosis.	Tuberculous	—	—	—	1	2	—	—	—	—	3	1	—	7	33·3
	Non-tuberculous	—	—	—	1	—	1	—	1	1	—	5	1	10	47·6
	Doubtful	—	—	—	—	—	—	1	—	—	2	—	1	4	19·0
Grand Total 466															

AFTER-HISTORIES OF PATIENTS SUFFERING FROM NON-PULMONARY TUBERCULOSIS.

Table 31 below shows the after-histories of non-pulmonary cases (adults and children) who came on the dispensary register during the years 1912 to 1923 :—

Classification : Part affected.	Adults or Children (at time of commencing treatment).	Net Number of Cases. *	Position at the end of 1928.							
			Cured.		Arrested or Quiescent.		Disease Active.		Died from Tub.	
			No.	%	No.	%	No.	%	No.	%
Bones and Joints...	Adults	635	269	42.3	99	15.6	50	7.9	217	34.2
	Children	553	256	46.3	142	25.7	50	9.0	105	18.9
Abdominal ...	Adults	136	48	35.3	11	8.1	1	0.7	76	55.9
	Children	205	123	60.0	21	10.2	5	2.4	56	27.3
Other Organs ...	Adults	77	36	46.7	12	15.6	4	5.2	25	32.5
	Children	10	4	40.0	1	10.0	1	10.0	4	40.0
Peripheral Glands	Adults	575	458	79.6	64	11.1	17	2.9	36	6.3
	Children	740	593	80.1	92	12.4	34	4.6	21	2.8
Skin ...	Adults	163	56	34.3	34	20.8	65	39.9	8	4.9
	Children	106	54	50.9	16	15.1	35	33.0	1	0.9
TOTAL ... {	Adults	1586	867	54.7	220	13.9	137	8.6	362	22.8
	Children	1614	1030	63.8	272	16.8	125	7.7	187	11.6

* Net number arrived at after deducting patients left County, untraced, ceased treatment for other than medical reasons, died from other than tuberculosis, and transferred to pulmonary.

The table shows the excellent results which have been, and are being, achieved in the treatment of patients—particularly children—suffering from non-pulmonary tuberculosis. With regard to tuberculosis of the skin, however, it will be seen that between 30 and 40 per cent. of the patients were, at the end of 1928, suffering from the disease in an active form. Most of these cases are now treated by artificial light at centres recently established at tuberculosis dispensaries. This form of treatment has proved much more successful than other methods, but sufficient time has not yet elapsed for these good results to reflect themselves in the table. No case is written off the register as “cured” until it has remained without signs or symptoms of active disease for at least three years.

It has been considered unsound to attempt to make any comparison between the results of treatment of patients at institutions as against treatment at home, because as a rule the worst cases have to be sent to residential institutions as they cannot be properly treated at home, and conversely the less severe types of cases (such as cervical glands and early disease of bones and joints) can be and are treated at home by their own doctor with the assistance of the dispensary staff.

XIV.—INSTITUTIONAL ACCOMMODATION.

On the 31st December, 1928, there were altogether 858 beds at sanatoria and hospitals occupied by County patients, as compared with 819 at the end of 1927.

The number of beds occupied fluctuates considerably during the course of the year : there is a greater demand for beds in the Summer than during the Winter. For instance, on 1st August, 1929, the number of beds in occupation totalled 895.

Taking the institutional accommodation as it stood on 31st December, 1928, the number of sanatorium beds occupied by pulmonary cases worked out at *one* per 5,234 of the population, and the number of pulmonary hospital beds *one* per 6,658.

Below is given a summary of the beds occupied at the several types of institutions at the end of 1928 :—

TABLE 32.

Type of Institution.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
(a) Sanatoria... ..	290	3	1	—	294
(b) Children's Sanatoria ...	—	45	—	13	58
(c) Training Colonies ...	4	—	—	—	4
(d) Pulmonary Hospitals ...	266	5	2	—	273
(e) Observation Cases (Pulmonary)	4	3	—	—	7
(f) General Hospitals ...	1	—	21	9	31
(g) Special Hospitals ...	1	—	69	8	78
(h) Children's Non-Pulmonary Hospitals	—	—	—	110	110
(i) Observation Cases (Non-Pulmonary)	—	—	1	2	3
Total	566	56	94	142	858
	622		236		

The number of beds in occupation by County patients on the 31st December of each year is as follows :—

1921	1922	1923	1924	1925	1926	1927	1298
641	678	750	766	790	825	819	858

Of the 622 beds occupied at the end of 1928 by pulmonary patients, 77 per cent. of the cases were classified as “T.B. plus,” that is, sometime during treatment their sputum was positive.

The names of the institutions and the number of beds taken by County patients are set out fully in Appendix VII.

XV.—HOME TREATMENT AND DISPENSARY TREATMENT OR SUPERVISION.

All notified cases of tuberculosis while at home are under the supervision of the tuberculosis officers and tuberculosis health visitors, in addition to the treatment that may be obtained from their medical practitioners.

For insured persons suffering from tuberculosis, the “National Health Insurance (Medical Benefit) Regulations, 1924,” contain references to the duties of practitioners, as to referring and reporting on cases of tuberculosis to the tuberculosis officer, particulars thereof being given in the annual report for 1925.

The Minister of Health (in Memo. No. 286) advises that an insurance practitioner should refer also to the tuberculosis officer any case suspected to be suffering from tuberculosis in order that there may be no delay in giving the patient the benefit of any facilities available under the tuberculosis scheme of the local authority.

The most cordial and effective co-operation exists in the County between the tuberculosis medical staff and the family doctors.

Ordinary medical treatment at dispensaries (as distinct from special treatment such as artificial light and artificial pneumothorax) has never been undertaken, unless the patient has no doctor or requires some special form of treatment. Patients with active disease are examined by the tuberculosis officer at frequent intervals, and placed for short periods—generally three months—on dispensary supervision, and granted other forms of treatment as found necessary. Quiescent or arrested cases are kept under supervision so long as they are well, and are reviewed annually.

Prior to the examination of a patient by the tuberculosis officer, information is sent to the medical attendant as to time and place. In some cases general practitioners confer with the tuberculosis officer in person, to their mutual advantage, and in other cases this end is secured by telephone or correspondence. The number of consultations in 1928 was as follows : At the homes of patients, 968 ; otherwise, 4,974 ; total, 5,942.

XVI.—TREATMENT AND OCCUPATIONAL TRAINING AND VILLAGE SETTLEMENTS.

Male patients suffering from pulmonary tuberculosis recommended by the tuberculosis officers for a course of treatment combined with training are, by arrangement, sent to the East Lancashire Training Colony, Barrowmore Hall, Cheshire, occasionally to the British Legion Village, Preston Hall, Aylesford, Kent, and the Burrow Hill Training Colony, Frimley, Surrey (for youths 14 to 19 years of age). The following trades or occupations are taught: poultry farming, pig keeping, game-keeping, cabinet making, carpentry, horticulture, market gardening, boot making and repairing, French polishing, upholstering, and clerical work.

The following table gives particulars of the patients so far granted a course of treatment combined with training :—

TABLE 33.—*Treatment and Occupational Training.*

Classifica- tion on Admission.	Total No. admitted (3rd Aug., 1920, to 31st Dec., 1928).	Total Number Dis- charged.	Average duration of stay at Colony* (months).	PATIENTS DISCHARGED (1920 to 1928).			Still undergoing Training, 31st Dec., 1928.
				Course of Training completed.	Training terminated before completion of course.	Transfer to Sanatoria or Hospital.	
T.B. Minus	35	35	14.50	17	18	—	—
T.B. Plus 1	24	24	16.00	8	14	2	—
T.B. Plus 2	30	26	14.50	12	11	3	4
T.B. Plus 3	3	3	12.00	1	2	—	—
Total	92	88	14.75	38	45	5	4

* Average duration relates to patients who completed course.

Thus, of 88 patients who left training colonies (82 of whom were ex-service men), *only* 38 (or 43 per cent.) were regular discharges on completion of the course. The fact that 50 out of 88 men failed to complete their course cannot be regarded as satisfactory, particularly as the patients were chosen with extreme care by the tuberculosis officers. The published figures for the whole of the country continue, in my opinion, to be disappointing.

The reasons given for the 45 patients who left irregularly or prematurely are as follow :—

Medically unfit to continue training...	14	} 45
Temperamentally unsuitable	...	...	...	7
Discharged for disciplinary reasons	...	...	...	10
Left on own responsibility and against advice	...	...	...	14

Concerning the 38 men who duly completed their training, the following statement shows their position at the end of March, 1929 :—

Colonised at East Lancashire Training Colony, Cheshire	7	} 38
Colonised at Preston Hall Training Colony, Kent	...	...	...	2
Successfully following occupation in which trained	...	...	...	2
Following occupation in which trained, but with only partial success	...	...	...	3
Written off Register as Cured	...	...	...	5
Medically unfit for work	...	...	...	3
Undergoing treatment in a special hospital	...	...	...	1
Following other occupations	...	...	...	8
Removed out of County area	...	...	...	4
Died	...	...	...	3

In view of the unfortunate lack of success in training men in new occupations and settling them in employment, recommendations for treatment and training are made with the greatest care and stringency ; the number of new admissions in 1928 was 9.

How to deal with tuberculous patients, men and women, following unsuitable occupations, treating them in sanatoria and then training them in some new craft, and eventually settling a proportion of them with unsatisfactory home or working conditions in village settlements, is perhaps the most difficult matter now awaiting a solution on a large scale in the whole tuberculosis problem. The problem is all the more serious owing to the large amount of unemployment among the healthy workers which renders the successful employment of the tuberculous a matter of extreme difficulty. The several village settlements—such as Papworth in Cambridgeshire, and Preston Hall in Kent—established by voluntary bodies in this country are only able to deal with a fraction of the patients, and it remains a matter of controversy whether similar successful settlements could be established under schemes administered by public authorities.

APPENDIX I.

Death-Rates in 1928 from Tuberculosis in 119 Urban and Rural Districts in Lancashire, and in the 7 County Dispensary Areas.

SANITARY DISTRICT.	Estimated Population, 1928.	Pulmonary Tuberculosis.			Non-Pulmonary Tuberculosis.	
		Number of Deaths, 1928.	Death-Rate per 1,000 of Population, 1928.	Average Death-Rate 5 years, 1923-27.	Number of Deaths, 1928.	Death-Rate per 1,000 of Population, 1928.
URBAN.						
Abram	7,013	3	0.42	0.70	—	—
Accrington (B)	42,940	31	0.72	0.66	8	0.18
Adlington	4,340	3	0.69	0.44	—	—
Ashton-in-Makerfield	22,780	9	0.39	0.60	7	0.30
Ashton-under-Lyne (B)	51,960	55	1.05	0.83	7	0.13
Aspull	7,620	5	0.65	0.65	1	0.13
Atherton	20,110	14	0.69	0.60	3	0.14
Audenshaw... ..	8,524	4	0.46	0.57	1	0.11
Bacup (B)	20,550	7	0.34	0.66	1	0.04
Barrowford... ..	5,479	—	—	0.67	2	0.36
Billinge and Winstanley	5,201	7	1.34	0.49	1	0.19
Blackrod	3,842	1	0.26	0.25	—	—
Brierfield	8,063	3	0.37	0.47	1	0.12
Carnforth	3,117	4	1.28	0.67	1	0.32
Chadderton... ..	28,100	21	0.74	0.69	4	0.14
Chorley (B)... ..	31,580	19	0.60	0.57	5	0.15
Church	6,575	3	0.45	0.61	3	0.45
Clayton-le-Moors	8,500	3	0.35	0.62	—	—
Clitheroe (B)	12,100	4	0.33	0.68	3	0.24
Colne (B)	24,740	11	0.44	0.75	8	0.32
Crompton	15,000	11	0.73	0.74	3	0.20
Croston	2,011	—	—	0.20	—	—
Dalton-in-Furness	10,500	11	1.04	1.13	7	0.66
Darwen (B)	38,150	19	0.49	0.46	4	0.10
Denton	17,600	10	0.56	0.67	3	0.17
Droylsden	13,690	7	0.51	0.77	1	0.07
Eccles (B)	45,200	22	0.48	0.83	9	0.19
Failsworth	16,840	8	0.47	0.88	3	0.17
Farnworth	29,500	16	0.54	0.73	6	0.20
Fleetwood	22,470	14	0.62	0.79	6	0.26
Formby	7,492	4	0.53	0.64	3	0.40
Fulwood	6,781	3	0.44	0.54	1	0.14
Golborne	7,477	3	0.40	0.71	—	—
Grange-over-Sands	2,329	1	0.42	0.75	—	—
Great Crosby	16,460	7	0.42	0.75	—	—
Great Harwood	14,000	3	0.21	0.53	2	0.14
Haslingden (B)	17,100	5	0.29	0.55	1	0.05
Haydock	10,840	4	0.36	0.44	—	—
Heywood (B)	26,080	15	0.57	0.77	4	0.15
Hindley	24,160	19	0.78	0.69	6	0.24
Horwich	16,850	10	0.59	0.73	2	0.11
Huyton-with-Roby	5,117	2	0.39	0.60	1	0.19
Ince-in-Makerfield... ..	24,020	12	0.49	0.74	4	0.16
Irlam	12,220	9	0.73	0.60	3	0.24
Kearsley	10,380	15	1.44	0.76	1	0.09
Kirkham	4,126	5	1.21	0.72	—	—
Lancaster (B)	41,250	30	0.72	0.92	6	0.14
Lathom-and-Burscough	7,963	2	0.25	0.56	1	0.12
Lees	4,945	1	0.20	0.74	2	0.40
Leigh (B)	46,710	35	0.74	0.80	7	0.14
Leyland	10,260	5	0.48	0.60	2	0.19
Litherland	16,410	15	0.91	1.13	3	0.18
Littleborough	11,510	3	0.26	0.50	2	0.17
Little Crosby	1,160	—	—	0.30	—	—
Little Hulton	7,918	5	0.63	0.49	4	0.50
Little Lever	5,138	2	0.38	0.38	—	—
Longridge	4,180	1	0.23	0.56	3	0.71
Lytham-St.-Annes (B)	25,940	16	0.61	0.42	4	0.15
Middleton (B)	29,010	19	0.65	0.58	3	0.10
Milnrow	8,774	9	1.02	0.59	—	—
Morecambe & Heysham (B)	22,170	12	0.54	0.77	6	0.27
Mossley (B)... ..	12,030	3	0.24	0.68	1	0.08
Nelson (B)	39,560	19	0.48	0.55	3	0.07
Newton-in-Makerfield	19,720	11	0.55	0.79	1	0.05
Norden	4,426	4	0.90	0.47	—	—

APPENDIX I (contd.).

SANITARY DISTRICT.	Estimated Population, 1928.	Pulmonary Tuberculosis.			Non-Pulmonary Tuberculosis.	
		Number of Deaths, 1928.	Death-Rate per 1,000 of Population, 1928.	Average Death-Rate 5 years, 1923-27.	Number of Deaths, 1928.	Death-Rate per 1,000 of Population, 1928.
URBAN (contd.)						
Ormskirk	7,408	6	0.80	0.83	1	0.13
Orrell	7,236	—	—	0.64	2	0.27
Oswaldtwistle	14,850	9	0.60	0.40	2	0.13
Padiham	11,870	4	0.33	0.78	3	0.25
Poulton-le-Fylde	3,021	—	—	0.06	1	0.33
Preesall	2,049	3	1.46	0.65	—	—
Prescot	10,110	5	0.49	0.84	2	0.19
Prestwich	21,670	12	0.55	0.58	1	0.04
Radcliffe	25,380	16	0.63	0.55	4	0.15
Rainford	3,820	2	0.52	0.21	—	—
Ramsbottom	14,320	8	0.55	0.53	1	0.06
Rawtenstall (B)	28,990	12	0.41	0.64	3	0.10
Rishton	6,958	7	1.00	0.53	1	0.14
Royton	17,310	23	1.32	0.60	5	0.28
Skelmersdale	6,834	3	0.43	0.51	—	—
Standish-with-Langtree	7,425	4	0.53	0.44	3	0.40
Stretford	52,110	41	0.78	0.74	6	0.11
Swinton and Pendlebury	34,010	17	0.49	0.69	3	0.08
Thornton Cleveleys	9,045	3	0.33	0.57	—	—
Tottington	6,631	—	—	0.52	—	—
Trawden	2,710	1	0.36	0.36	1	0.36
Turton	12,390	7	0.56	0.53	—	—
Tyldesley-with-Shakerley	15,560	6	0.38	0.73	4	0.25
Ulverston	9,104	4	0.43	0.66	5	0.54
Upholland	5,896	3	0.50	0.24	2	0.33
Urmston	8,020	7	0.87	0.54	1	0.12
Walton-le-Dale	12,440	10	0.80	0.77	1	0.08
Wardle	4,674	1	0.21	0.51	1	0.21
Waterloo-with-Seaforth	31,620	35	1.10	0.95	8	0.25
Westhoughton	17,510	9	0.51	0.38	1	0.05
Whitefield	7,714	6	0.77	0.60	1	0.12
Whitworth	8,565	8	0.93	0.84	4	0.46
Widnes (B)	41,010	29	0.70	0.89	12	0.29
Withnell	3,409	3	0.88	0.45	1	0.29
Worsley	14,720	8	0.54	0.52	2	0.13
Total Urban ...	1,544,990	946	0.61	0.68	256	0.16
RURAL.						
Barton-upon-Irwell	12,830	9	0.70	0.68	1	0.07
Blackburn	11,200	5	0.44	0.59	—	—
Burnley	19,200	10	0.52	0.50	4	0.20
Bury	9,370	2	0.21	0.61	—	—
Chorley	22,250	9	0.40	0.43	1	0.04
Clitheroe	8,958	1	0.11	0.52	1	0.11
Fylde	16,180	4	0.24	0.37	—	—
Garstang	11,560	3	0.25	0.40	—	—
Lancaster	9,321	3	0.32	0.51	2	0.21
Leigh	11,780	6	0.50	0.65	1	0.08
Limehurst	9,029	2	0.22	0.71	3	0.33
Lunesdale	6,318	3	0.47	0.65	1	0.15
Preston	28,060	10	0.35	0.40	3	0.10
Sefton	5,497	6	1.09	0.91	1	0.18
Ulverston	16,500	15	0.90	0.56	2	0.12
Warrington... ..	16,030	10	0.62	0.66	1	0.06
West Lancashire	22,880	7	0.30	0.53	5	0.21
Whiston	22,610	11	0.48	0.53	5	0.22
Wigan	6,437	4	0.62	0.37	—	—
Total Rural ...	266,010	120	0.45	0.52	31	0.11
Total for Administra- tive County... ..	1,811,000	1,066	0.58	0.66	287	0.15
DISPENSARY AREAS.						
No. 1	260,601	145	0.54	0.60	39	0.14
No. 2	354,883	164	0.46	0.59	51	0.14
No. 3	373,152	248	0.66	0.68	54	0.14
No. 4	343,716	221	0.64	0.69	52	0.15
No. 5	378,246	228	0.60	0.70	70	0.18
Furness Sub-Area... ..	38,433	31	0.80	0.76	14	0.36
Fylde Sub-Area	61,969	29	0.50	0.60	7	0.12

APPENDIX II.

NOTIFICATIONS OF TUBERCULOSIS.

Since February 1st, 1913, tuberculosis—both “pulmonary” and “other forms”—has been compulsorily notifiable under the Public Health (Tuberculosis) Regulations, 1912. The number of notifications made year by year since 1913 are given on page 21.

Tables B and C, here inserted, analyse the notifications received giving the part of the body affected and the age groups.

Table D, also inserted, compares the male and female notifications.

TABLE 34.—*Deaths of 354 persons “ notified as suffering from pulmonary tuberculosis ” in 1928 which took place within three months of the date of notification.*

Period between date of case notification and death.	Certified cause of Death.			Total.
	Pulmonary.		Non- Pulmonary	
	Primary	Secondary		
Under 1 week	58	3	11	72
1 to 2 weeks	29	—	1	30
2 to 3 weeks	26	2	—	28
3 to 4 weeks	39	—	1	40
1 to 2 months	103	6	1	110
2 to 3 months	69	—	5	74
Total under 3 months ...	324	11	19	354
	335			

Included in the above Table are 34 deaths which occurred outside the County area.

In addition to the foregoing 354 deaths which occurred within three months of notification, in 26 instances (8 pulmonary and 18 non-pulmonary) death took place *before* the actual receipt of the notification, against 27 (16 pulmonary and 11 non-pulmonary) in the preceding year.

TABLES B, C AND D,
ANALYSING
NOTIFICATIONS UNDER PUBLIC HEALTH
(TUBERCULOSIS)
REGULATIONS, 1912.

LANCASHIRE COUNTY COUNCIL.

Table A.—List of Tuberculosis Dispensaries in use in October, 1929, and the Tuberculosis Officers for the Dispensary Areas.

Dispensary Area No.	SANITARY DISTRICTS.			Estimated Civilian Population 31/12/28.	MEDICAL STAFF October, 1929.	NURSING STAFF.	DISPENSARIES (Chief and Branch).	Days and Hours of DISPENSARY SESSIONS (Distinct from Home Visiting, attending Sanatoria, Hospitals and Care Committees, etc.).
1	Adlington Blackrod Carnforth Chorley (B.) Chorley (R.) Croston Fulwood Garstang (R.). Part of, consisting of parishes of— Barnacre-with-Bonds Bilsborrow Bleasdale Cabus	Garstang (R.) <i>continued</i> Catterall Cloughton Cleveley Forton Garstang Holleth Kirkland Myerscough Nateby Nether Wyresdale Winmarleigh	Horwich Lancaster (B.) Lancaster (R.) Leyland Longridge Lunesdale (R.) Lytham St. Annes (B.) Morecambe & Heysham (B.) Preston (R.) Walton-le-Dale Withnell	260,601	Dr. A. D. Brunwin, Tuberculosis Dispensary, 8 Middle Street, Lancaster. Assistant Tuberculosis Officer— Dr. C. H. Leigh.	Nurse L. Walker Nurse F. D. Abbott Nurse G. M. Hunter Nurse J. Skelcher	LANCASTER (Chief), 8 Middle Street (Tel. No. 568). (X-ray Apparatus and Artificial Light Installation). CHORLEY (Branch), 59 Gillibrand St. (Tel. No. 263). (Artificial Light Installation). PRESTON (Branch), 22 Bolton Street (Tel. No. 1111). (Artificial Light Installation).	Monday, 11 a.m. Other days by appointment. 2nd Monday evening of month by appointment. Monday by appointment. Thursday, 11 a.m. 2nd Tuesday evening of month by appointment. Wednesday, 11 a.m. Monday evening before 2nd Tuesday of month by appointment.
	FURNESS SUB-AREA— Dalton-in-Furness Grange-over-Sands	Ulverston	Ulverston (R.)	38,433	Dr. E. H. A. Pask, High Carley Sanatorium, near Ulverston (Tel. No. 110 Ulverston).	Nurse E. A. Duston	ULVERSTON (Branch), Virginia House (Tel. No. 145). (Artificial Light Installation). (X-ray Apparatus at High Carley Sanatorium).	Tuesday, 10 a.m. Thursday, 10 a.m.
	FYLDE SUB-AREA— Fleetwood Fylde (R.) Garstang (R.), Part of, consisting of parishes of— Great Eccleston Hambleton	Inskip-with-Sowerby Out Rawcliffe Pilling Stalmine-with-Stainall Upper Rawcliffe	Kirkham Poulton-le-Fylde Preesall Thornton Cleveleys	61,969	Dr. G. Leggat, Elswick Sanatorium, near Kirkham (Tel. No. 22 Great Eccleston).	Nurse A. Tweedy	FLEETWOOD (Branch), 23 Poulton Rd. (Tel. No. 282). (Artificial Light Installation). (X-ray Apparatus at Elswick Sanatorium).	Tuesday, 10 a.m.
2	Accrington (B.) Bacup (B.) Barrowford Blackburn (R.) Brierfield Burnley (R.) Church	Clayton-le-Moors Clitheroe (B.) Clitheroe (R.) Colne (B.) Darwen (B.) Great Harwood Haslingden (B.)	Nelson (B.) Oswaldtwistle Padiham Rawtenstall (B.) Rishton Trawden Turton	354,883	Dr. B. MacPhee, Tuberculosis Dispensary, 39 Avenue Parade, Accrington. Assistant Tuberculosis Officers— Dr. S. C. Adam Dr. F. C. S. Bradbury	Nurse L. F. Norwood Nurse E. Watterson Nurse M. Duggan Nurse A. Munro Nurse H. M. Alecock Nurse R. Lambert	ACCRINGTON (Chief), 39 Avenue Parade (Tel. No. 2443). DARWEN (Branch), 20 Railway Road (Tel. No. 408). (X-ray Apparatus). NELSON (Branch), 64 Carr Road (Tel. No. 507). (Artificial Light Installation). STACKSTEADS (Branch), Knott Hill House (Tel. No. 201 Bacup). (Artificial Light Installation).	Tuesday, 2 p.m. Wednesday, 2 p.m. 2nd Tuesday of month, 6 p.m. Monday, 10 a.m. Tuesday, 2 p.m. Friday by appointment. Monday, 2 p.m. 1st Monday of month, 6 p.m.
3	Ashton-under-Lyne (B.) Audenshaw Bury (R.) Chadderton Crompton Denton Droylsden Failsworth	Heywood (B.) Lees Linchurst (R.) Littleborough Middleton (B.) Milnrow Mossley (B.) Norden	Prestwich Radeliffe Ramsbottom Royton Tottington Wardle Whitefield Whitworth	373,152	Dr. G. Fletcher, Tuberculosis Dispensary, Boston House, Warrington Street, Ashton-under-Lyne. Assistant Tuberculosis Officers— Dr. C. Berry Dr. J. Cathcart	Nurse H. Dewsnap Nurse M. Sherwen Nurse W. Swift Nurse M. A. Potter Nurse C. Guilfooy Nurse I. F. MacDonald	ASHTON-UNDER-LYNE (Chief), Boston House, Warrington Street (Tel. No. 775). (X-ray Apparatus and Artificial Light Installation). MIDDLETON (Branch), 71 Manchester Old Road. MOSSLEY (Branch), Park Lodge. OLDHAM (Branch), 25 Barker Street (Tel. No. 1671).	Monday, 10-30 a.m. for X-ray examinations. Tuesday, 2-30 p.m. Friday, 10 a.m. 1st Tuesday of month, 6-30 p.m. Friday, 2-30 p.m. 2nd Friday of month, 6-30 p.m. Tuesday, 11 a.m. Monday, 2-30 p.m. Wednesday, 10 a.m. 2nd Monday of month, 6-30 p.m. Wednesday, 2 p.m. 3rd Wed. of month, 6-30 p.m.
						Nurse A. Flynn Nurse H. Dewsnap Nurse M. Sherwen Nurse A. Flynn	RADCLIFFE (Branch), 41 Darbyshire St. (Tel. No. 323). (Artificial Light Installation). ROCHDALE (Branch), 168 Drake St., (Tel. No. 3892).	Thursday, 10-30 a.m. 2nd Thursday of month, 6-30 p.m.
4	Atherton Barton-upon-Irwell (R.) Eccles (B.) Farnworth Irlam Kearsley	Leigh (B.) Leigh (R.) Little Hulton Little Lever Stretford	Swinton and Pendlebury Tyldesley-with-Shakerley Urmston Westhoughton Worsley	343,716	Dr. G. Jessel, Tuberculosis Dispensary, 13 Church Street, Leigh. Assistant Tuberculosis Officers— Dr. A. B. Jamieson Dr. H. J. Villiers	Nurse A. Worsley Nurse M. W. Stringman Nurse M. B. Jones Nurse H. M. Shakespeare Nurse F. G. Smith Nurse A. Dickinson Nurse D. Grime	LEIGH (Chief), 13 Church Street (Tel. No. 258). ECCLES (Branch), 28 and 30 Gilda Brook Road (Tel. No. 533). (X-ray Apparatus and Artificial Light Installation). FARNWORTH (Branch), 19-23 Darley Street (Tel. No. 63). PENDLEBURY (Branch), 121 Station Road (Tel. No. 1895 Swinton). STRETTFORD (Branch), 14 Derbyshire Lane (Tel. No. 110 Trafford Park).	Wednesday, 9-30 a.m. Friday, 9-30 a.m. 2nd Thurs. of month, 6-30 p.m. Tuesday, 2 p.m. : 2-30 p.m. for X-ray examinations. Thursday, 2-30 p.m. for X-ray examinations. Friday, 9-30 a.m. 1st Wed. of month, 6-30 p.m. Tuesday, 9-30 a.m. Friday, 2 p.m. 3rd Thurs. of month, 6-30 p.m. Monday, 2 p.m. Wednesday, 9-30 a.m. Last Thurs. of month, 6-30 p.m. Tuesday, 9-30 a.m. Thursday, 9-30 a.m. Last Monday of month, 6-30 p.m.
5	Abram Ashton-in-Makerfield Aspull Billing and Winstanley Formby Golborne Great Crosby Haydock Hindley Huyton-with-Roby	Ince-in-Makerfield Lathom and Burscough Litherland Little Crosby Newton-in-Makerfield Ormskirk Orrell Prescot Rainford Sefton (R.)	Skelmersdale Standish-with-Langtree Upholland Warrington (R.) Waterloo-with-Scaforth West Lancashire (R.) Whiston (R.) Widnes (B.) Wigan (R.)	378,246	Dr. C. W. Laird, Tuberculosis Dispensary, 7 Claremont Road, Scaforth. Assistant Tuberculosis Officers— Dr. C. H. Lilley Dr. G. B. Charnock	Nurse A. Duncan Nurse E. Walch Nurse I. Laing Nurse L. Farquhar Nurse M. J. Wilson Nurse E. Walters Nurse M. J. Evans	SEAFORTH (Chief), 7 Claremont Road (Tel. No. 688 Waterloo). (X-ray Apparatus). ST. HELENS (Branch), 90 Hardshaw Street (Tel. No. 916). (Artificial Light Installation). WIDNES (Branch), Brendan House, Widnes Road (Tel. No. 156). WIGAN (Branch), 3 Mesnes Park Terrace (Tel. No. 1172). (Artificial Light Installation).	Monday, 3 to 4-30 p.m. Thursday, 10-30 a.m. for X-ray examinations. Friday, 10 to 11-30 a.m. 3rd Thursday of month, 6 p.m. Tuesday, 3 to 4-30 p.m. Last Tues. of month, 6 to 7 p.m. Monday, 10 to 11-30 a.m. Friday, 2-30 to 4-30 p.m. 1st Wed. of month, 6 to 7 p.m. Monday, 9-30 a.m. Thursday, 9-30 a.m. 4th Thurs. of month, 6-30 p.m.
				1,811,000				

TABLE B.

ADMINISTRATIVE COUNTY OF LANCASTER.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912—1924.

CORRECTED* SUMMARY OF NOTIFICATIONS OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS DURING THE FIFTY-TWO WEEKS ENDED 29TH DECEMBER, 1928.

(Collated from Weekly Returns of District Medical Officers of Health.)

NOTIFICATIONS ON FORMS A AND B—Excluding Duplicates.																																		Total Notifi- cations (i.e. including cases previously notified by other Doctors).										
PULMONARY.							NON-PULMONARY.																																					
							BONES AND JOINTS.															ABDOMINAL.			GENITO-URINARY.							PERIPHERAL GLANDS.				Total Pul- monary and Non- Pul- monary.								
							Lungs only.	Lungs and Larynx.	Larynx.	Bronchial Glands.	Mediastinal Glands.	TOTAL.	Head (including Middle Ear).	Trunk.			Arm.					Leg.					Two or more different Joints.	Not Classified.	Intestines.	Peritoneum.	Mesenteric Glands.	Bladder.	Fall. Tube.		Kidney.		Prostate.	Suprarenal.	Testicle and Epididymis.	Not Classified (two or more).	MENINGITIS (Brain).	MILITARY (Generalised).	SKIN (Lupus).	Axillary.
Ribs and Sternum.	Spine.	Shoulder.	Scapula.	Humerus.	Elbow.	Radius.								Ulna.	Hand and Wrist.	Hip and Pelvis.	Femur.	Knee.	Tibia.	Fibula.	Foot and Ankle.																							
Thirteen weeks ended 31st March, 1928 ...	474	7	1	2	2	486	1	2	9	2	...	2	...	2	...	3	16	1	6	2	1	7	3	...	4	31	11	...	1	2	2	21	1	18	1	111	...	9	269	755	824	
Thirteen weeks ended 30th June, 1928 ...	475	3	2	3	...	483	...	3	16	1	...	1	5	19	1	7	1	...	9	3	1	4	32	4	3	...	1	2	...	24	1	10	1	131	2	10	292	775	845
Thirteen weeks ended 29th September, 1928	365	3	1	2	...	371	...	2	15	1	...	1	2	4	12	3	7	5	6	23	5	2	3	...	13	2	14	...	83	1	3	207	578	640
Thirteen weeks ended 29th December, 1928	312	5	1	1	1	320	1	1	8	2	1	14	...	6	6	3	...	3	18	4	1	...	3	1	...	18	...	17	3	73	...	5	188	508	568
Total ...	1626	18	5	8	3	*1660	2	8	48	4	...	4	4	2	...	13	61	5	26	3	1	27	9	1	17	104	24	1	1	10	...	1	6	2	76	4	59	5	398	3	27	*956	*2616	2877

NOTIFICATIONS ON FORMS A AND B—Excluding Duplicates.																									NOTIFICATIONS. FORM B ONLY. (By School Medical Inspectors).										Number of Cases Notified on Form C. (Admissions).		Number of Cases notified on Form D (Dis- charges from Institu- tions).					
PULMONARY.														NON-PULMONARY.											Total Pul- monary and Non- Pul- monary.	PRIMARY NOTIFICATIONS. (i.e., excluding duplicates).				Total Notifica- tions (i.e., including cases previously notified by other Doctors).	Poor Law Institu- tions.	Sana- toria.										
Years. {	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up- wds.	TOTAL.	TOTAL M. & F.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up- wds.		TOTAL.	TOTAL M. & F.	Under 5 years.	5 to 10 years.				10 to 15 years.	TOTAL.								
	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.	P.	N.P.										
Thirteen weeks ended 31st March, 1928 ... {	M. F.	1 ...	2 3	12 12	8 9	17 39	34 36	55 59	49 40	52 14	18 15	6 5	254 232	} 486	5 3	26 18	35 26	19 18	15 20	14 19	10 14	3 6	7 6	3 1	... 1	137 132	} 269	755	1 3	3 3	1 ...	3 2	2 3	6 5	} 16	16	5	389	299	
Thirteen weeks ended 30th June, 1928 ... {	M. F.	...	3 2	9 10	6 10	20 28	31 42	50 65	51 34	50 23	23 14	5 7	248 235	} 483	5 1	24 21	29 36	20 25	27 14	11 18	15 14	6 4	2 9	3 4	3 1	145 147	} 292	775	...	1 1	...	5 4	1 ...	2 4	1 2	8 9	} 20	21	14	380	335	
Thirteen weeks ended 29th September, 1928 {	M. F.	6 7	2 7	21 32	22 49	37 39	28 24	47 12	18 8	9 2	190 181	} 371	...	16 13	22 25	15 18	11 11	11 14	7 14	4 8	3 4	4 1	1 1	94 113	} 207	578	1 2	...	2	1 4	} 5	6	6	344	331	
Thirteen weeks ended 29th December, 1928 ... {	M. F.	...	2 ...	4 4	4 6	12 27	19 20	45 32	35 27	27 13	23 7	7 6	178 142	} 320	6 5	16 17	28 13	12 9	14 11	7 12	8 8	2 9	2 2	...	3 2	98 90	} 188	508	1 2	5	3 1	1 8	2 2	} 12	14	5	308	315
Total ... {	M. F.	1 ...	7 6	31 33	20 32	70 126	106 147	187 195	163 125	176 62	82 44	27 20	870 790	} *1660	16 13	82 69	114 100	66 70	67 56	43 63	40 50	15 27	14 21	10 8	7 5	474 482	} *956	*2616	...	1 1	2 5	14 11	2 1	8 8	4 6	23 20	} 53	57	30	1421	1280	

*Corrected figures after deducting 63 Pulmonary and 52 Non-Pulmonary cases notified in error by practitioners.

TABLE C.

ADMINISTRATIVE COUNTY OF LANCASTER.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912—1924.

ANALYSIS OF THE NOTIFICATIONS ON FORMS A AND B (EXCLUDING DUPLICATES) RECEIVED DURING THE FIFTY-TWO WEEKS
ENDED 29th DECEMBER, 1928. († Corrected figures.)

(Collated from Weekly Returns of District Medical Officers of Health.)

AGE—YEARS :—		...	0 — 1			1 — 5			5 — 10			10 — 15			15 — 20			20 — 25			25 — 35			35 — 45			45 — 55			55 — 65			65 & upwds.			TOTALS.			...		
SEX.		Col.	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	Col.		
PULMONARY—																																									
Lungs only	1	1	...	1	7	6	13	28	31	59	18	29	47	70	124	194	104	145	249	184	194	378	159	123	282	173	62	235	80	44	124	25	19	44	849	777	1626	1		
Lungs and Larynx...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	2	4	1	1	2	2	1	3	3	...	...	...	2	1	3	12	6	18	2	
Larynx ...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	2	1	3	...	...	...	...	...	...	...	...	4	1	5	3
Bronchial Glands	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	3	8	4
Mediastinal Glands	...	5	...	...	...	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
PULMONARY TOTAL		6	1	...	1	7	6	13	31	33	64	20	32	52	70	126	196	106	147	253	187	195	382	163	125	288	176	62	238	82	44	126	27	20	47	870	790	1660	6		
*Cases—Pulmonary and Non-Pulmonary combined		1	2	3	3	3	6	...	2	2	2	7	9	1	3	4	4	5	9	1	1	2	3	2	5	1	1	2	...	1	1	16	27	43			
NON-PULMONARY—																																									
BONES AND JOINTS	Head—																																								
	(Incl. Middle Ear) ...	7	...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	7
	Trunk—																																								
	Ribs and Sternum ...	8	...	...	...	1	...	1	1	...	1	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	8
	Spine ...	9	5	2	7	4	2	6	2	3	5	3	2	5	3	3	6	5	8	13	1	1	2	1	...	1	...	2	1	1	24	24	48	
	Arm—																																								
	Shoulder ...	10	...	...	...	...	...	...	...	...	...	...	1	1	1	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	4
	Scapula ...	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Humerus ...	12	...	...	...	...	1	1	1	...	1	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Elbow ...	13	...	...	...	...	...	...	...	...	1	1	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Radius ...	14	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Ulna ...	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Hand and Wrist	16	...	...	...	1	1	2	...	...	...	...	1	1	3	2	5	1	...	1	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Leg—																																								
	Hip and Pelvis	17	5	6	11	10	4	14	7	3	10	6	5	11	1	3	4	4	...	4	1	1	2	1	2	3	...	1	1	...	1	1	...	1	1	35	26	61
	Femur ...	18	...	...	...	...	...	...	...	...	1	1	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Knee ...	19	...	...	...	3	3	6	4	2	6	3	2	5	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tibia ...	20	...	...	...	1	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fibula ...	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Foot and Ankle	22	...	1	1	3	...	3	1	1	2	4	3	7	4	...	4	1	2	3	2	...	2	1	1	2	...	1	1	...	...	...	...	...	...	...	...	...
Two or more different Joints	23	1	...	1	1	1	2	1	...	1	...	...	...	1	...	1	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Not Classified	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ABDOM- INAL																																									
Intestines ...	25	1	1	2	2	1	3	1	1	2	...	...	...	1	1	2	1	2	3	...	2	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Peritoneum ...	26	3	2	5	18	10	28	12	7	19	2	8	10	11	7	18	4	5	9	2	7	9	1	1	2	...	3	3	...	1	1	...	...	...	...	...	...
Mesenteric Glands	27	2	...	2	3	...	3	2	3	5	2	3	5	1	1	2	2	3	5	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
GENITO- URINARY																																									
Bladder ...	28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fallopian Tube	29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kidney ...	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Prostate ...	31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				

TABLE D.

ADMINISTRATIVE COUNTY OF LANCASTER.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912—1924.

THE FOLLOWING TABLE COMPARES THE MALE AND FEMALE NOTIFIED CASES IN THE ADMINISTRATIVE COUNTY DURING THE YEARS 1913 to 1928, AT CERTAIN AGE GROUPS:—

			PULMONARY TUBERCULOSIS.													NON-PULMONARY TUBERCULOSIS.												
		Cases Male or Female.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up-wds.	Total.	Total.* M. & F.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up-wds.	Total.	Total.* M. & F.
1913	...	M	1	24	97	70	129	131	311	292	228	114	29	1426	2700	29	128	177	137	98	58	71	48	27	18	3	794	1592
(11 months)	...	F	6	28	100	104	158	188	296	201	103	65	25	1274		28	118	134	132	118	86	80	47	29	19	7	798	
1914	...	M	6	40	80	83	112	172	329	315	240	107	23	1507	2820	43	111	131	95	77	36	47	23	20	14	3	600	1140
	...	F	3	32	115	107	140	181	336	225	107	47	20	1313		37	88	98	89	77	44	58	27	12	6	4	540	
1915	...	M	5	47	97	79	127	138	305	303	235	117	34	1487	2872	39	109	113	93	61	46	50	29	14	5	3	562	1128
	...	F	5	27	96	111	152	191	383	239	100	60	21	1385		26	88	107	88	84	53	61	33	15	7	4	566	
1916	...	M	1	31	71	77	121	157	331	296	190	96	36	1407	2689	20	127	135	99	65	42	47	34	12	13	5	599	1180
	...	F	2	24	81	96	165	186	345	220	98	52	13	1282		8	68	122	114	85	46	65	41	19	11	2	581	
1917	...	M	4	20	77	62	113	104	262	268	190	90	30	1220	2375	21	116	109	105	61	23	42	30	8	9	1	525	1062
	...	F	2	22	90	100	129	155	296	185	107	50	19	1155		7	79	97	98	89	59	49	25	23	6	5	537	
1918	...	M	3	35	55	59	140	108	300	317	232	98	28	1375	2534	14	75	103	65	60	19	29	16	14	7	2	404	885
	...	F	1	24	69	74	139	166	297	207	117	52	13	1159		10	75	84	92	80	46	46	29	9	6	4	481	
1919	...	M	2	22	53	55	94	107	238	212	165	91	17	1056	2105	13	50	97	80	53	26	31	22	19	12	4	407	847
	...	F	5	14	54	80	126	161	261	184	99	41	24	1049		10	59	98	76	61	43	41	29	11	7	5	440	
1920	...	M	2	24	56	63	94	120	281	249	160	90	14	1153	2084	31	62	107	108	68	26	35	23	16	11	5	492	968
	...	F	2	20	53	71	115	122	264	147	84	36	17	931		12	66	86	78	62	46	52	34	23	16	1	476	
1921	...	M	1	17	43	47	94	133	222	225	162	84	19	1047	2044	12	60	110	84	53	32	41	23	17	6	4	442	899
	...	F	...	12	53	77	132	160	255	156	82	50	20	997		15	62	89	81	65	41	53	15	21	9	6	457	
1922	...	M	3	16	38	47	83	120	227	190	148	99	27	998	1863	18	101	111	79	55	37	39	22	13	7	3	485	956
	...	F	4	15	45	57	135	135	202	146	61	42	23	865		13	77	80	95	61	45	50	24	14	7	5	471	
1923	...	M	2	10	41	43	82	132	236	207	147	94	13	1007	1937	18	115	134	105	75	35	45	22	14	15	6	584	1188
	...	F	1	14	43	60	115	149	251	149	83	49	16	930		14	103	110	107	68	60	64	31	28	14	5	604	
1924	...	M	...	27	37	52	105	110	203	199	197	97	18	1045	1972	19	123	92	92	95	35	43	25	17	12	3	556	1120
	...	F	3	12	29	55	144	139	223	169	94	49	10	927		6	99	87	94	80	55	72	30	17	11	13	564	
1925	...	M	...	22	32	38	81	115	212	200	192	74	24	990	1846	17	108	106	73	58	37	53	26	15	12	5	510	1027
	...	F	3	10	24	44	144	153	198	136	85	34	25	856		9	86	84	91	82	41	57	33	18	10	6	517	
1926	...	M	1	9	27	40	91	113	210	198	158	110	23	980	1828	10	90	97	76	75	29	35	32	16	7	3	470	953
	...	F	2	12	41	47	114	169	224	120	68	38	13	848		19	83	94	51	67	56	51	34	17	6	5	483	
1927	...	M	1	11	47	39	115	111	197	187	185	85	19	997	1794	12	101	131	87	66	38	40	18	13	4	7	517	1045
	...	F	...	13	37	49	129	128	195	113	71	51	11	797		15	84	95	81	61	47	75	33	20	11	6	528	
1928	...	M	1	7	31	20	70	106	187	163	176	82	27	870	1660	16	82	114	66	67	43	40	15	14	10	7	474	956
	...	F	...	6	33	32	126	147	195	125	62	44	20	790		13	69	100	70	56	63	50	27	21	8	5	482	

* Corrected figures from 1922 after deducting the following cases found to be non-tuberculous and notifications cancelled :—1922: 14 pulmonary, 12 non-pulmonary ; 1923: 33 pulmonary, non-pulmonary ; 1924: 57 pulmonary, 38 non-pulmonary ; 1925: 83 pulmonary, 49 non-pulmonary ; 1926: 61 pulmonary, 41 non-pulmonary ; 1927: 68 pulmonary, 51 non-pulmonary, and 1928: 63 pulmonary, 52 non-pulmonary.

TABLE 35.—*Actual number of deaths from pulmonary and non-pulmonary tuberculosis since 1918 not previously notified under the Public Health (Tuberculosis) Regulations :—*

Year.	Non-notified Fatal Cases.		
	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Total.
1918	303	137	440
1919	221	104	325
1920	177	122	299
1921	135	96	231
1922	105	83	188
1923	85	74	159
1924	64	65	129
1925	67	57	124
1926	58	32	90
1927	54	42	96
1928	56	51	107

The 107 deaths in 1928 of cases not previously notified under the Regulations are further analysed below :—

TABLE 36.

	Cause of Death.			Total.
	Pulmonary. Primary	Secondary	Non-Pulmonary	
No. of deaths of persons at private addresses	40	7	34	81
No. in County Mental Hospitals of persons belonging to County area	1	—	—	1
No. in Union Institutions of persons belonging to County area	3	—	7	10
No. in other public institutions of persons belonging to County area	3	2	10	15
	47	9		
	56		51	107

During 1928, 99 pulmonary and 58 non-pulmonary deaths occurred outside the County area of persons usually residing in the Administrative County. Of these, 92 pulmonary and 56 non-pulmonary occurred in public institutions. In 52 instances no case notification could be traced. These are not included in Table 36.

N.B.—The Tables mentioned in Appendix II have been prepared in the County Public Health Department.

APPENDIX III.

HOUSING CONDITIONS OF PATIENTS IN EACH
DISPENSARY AREA AT THE END OF 1928.

	Pulmonary cases considered infectious or contagious.		Pulmonary cases not considered infectious or contagious.		Non-Pulmonary cases.	
	Under 15 years.	15 Years & over.	Under 15 years.	15 Years & over.	Under 15 years.	15 Years & over.
Patients occupying a separate bedroom :						
Area No. 1 ...	—	166	28	125	49	97
Area No. 2 ...	—	199	3	107	20	92
Area No. 3 ...	1	270	3	197	15	85
Area No. 4 ...	5	290	6	206	57	138
Area No. 5 ...	3	221	23	206	35	85
Furness Sub-Area ...	—	33	10	54	3	24
Fylde Sub-Area ...	—	36	5	45	10	24
TOTAL ...	9	1215	78	940	189	545
Patients occupying a separate bed but not a separate bedroom :						
Area No. 1 ...	—	33	32	42	85	24
Area No. 2 ...	3	105	6	59	71	72
Area No. 3 ...	3	123	25	147	114	108
Area No. 4 ...	1	100	25	99	116	93
Area No. 5 ...	2	93	71	145	186	100
Furness Sub-Area ...	—	7	33	20	19	13
Fylde Sub-Area ...	2	10	11	33	41	16
TOTAL ...	11	471	203	545	632	426
Patients not occupying a separate bed :		*				
Area No. 1 ...	—	26	39	94	107	141
Area No. 2 ...	—	19	5	90	50	130
Area No. 3 ...	1†	21	30	213	156	285
Area No. 4 ...	—	18	19	201	118	208
Area No. 5 ...	1	29	95	309	223	202
Furness Sub-Area ...	—	4	6	65	3	9
Fylde Sub-Area ...	—	9	7	70	44	49
TOTAL ...	2	126	201	1042	701	1024
GRAND TOTAL ...	22	1812	482	2527	1522	1995

* Of the infective patients without a separate bed, there were isolated in sanatoria or hospitals at the end of 1928 the following patients :—Area 1, 7 ; Area 2, 2 ; Area 3, 6 ; Area 4, 6 ; Area 5, 8 ; Furness Sub-Area, 2 ; and Fylde Sub-Area, 1 ; Total, 32.

† This child was isolated in a sanatorium at the end of 1928.

APPENDIX IV.

Return showing the work of the Dispensaries during the year 1928.
(Table I. of Memorandum 37/T of Ministry of Health).

DIAGNOSIS.	PULMONARY.				NON-PULMONARY.				TOTAL.			
	Adults.		Children.		Adults.		Children.		Adults.		Children.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
A.—NEW CASES examined during the year (excluding contacts) :												
(a) Definitely tuberculous ...	611	536	38	44	166	201	210	169	777	737	248	213
(b) Doubtfully tuberculous...	—	—	—	—	—	—	—	—	128	96	64	62
(c) Non-tuberculous...	—	—	—	—	—	—	—	—	750	729	355	329
B.—CONTACTS examined during the year :												
(a) Definitely tuberculous ...	17	28	4	5	4	8	8	7	21	36	12	12
(b) Doubtfully tuberculous...	—	—	—	—	—	—	—	—	9	13	6	16
(c) Non-tuberculous ...	—	—	—	—	—	—	—	—	202	436	259	298
C.—CASES written off the Dispensary Register as :												
(a) Cured	181	151	9	8	152	177	94	79	333	328	103	87
(b) Diagnosis not confirmed or non-tuberculous (including cancellation of cases notified in error)...	—	—	—	—	—	—	—	—	1053	1255	677	668
D.—NUMBER OF PERSONS on Dispensary Register on December 31st, 1928 :												
(a) Diagnosis completed ...	2429	1937	256	248	908	1097	821	709	3337	3034	1077	957
(b) Diagnosis not completed	—	—	—	—	—	—	—	—	5	9	4	6

1. Number of persons on Dispensary Register on January 1st, 1928 ...	8408	9. Number of patients to whom Dental Treatment was given, at or in connection with the Dispensary ...	22*
2. Number of patients transferred from other areas and of "lost sight of" cases returned	124	10. Number of consultations with medical practitioners:—	
3. Number of patients transferred to other areas and cases "lost sight of"	412	(a) At Homes of Applicants ...	968
4. Died during the year... ..	995	(b) Otherwise	4974
5. Number of observation cases under A (b) and B (b) above, in which period of observation exceeded 2 months... ..	89	11. Number of other visits by Tuberculosis Officers to Homes ...	5290
6. Number of attendances at the Dispensary (including Contacts), excluding attendances for light treatment	23855	12. Number of visits by Nurses or Health Visitors to Homes for Dispensary purposes	45835
7. Number of attendances of non-pulmonary cases at Orthopædic Out-stations for treatment or supervision	1645	13. Number of	
8. Number of attendances, at General Hospitals or other Institutions approved for the purpose, of patients for	At County Dispensaries 35037 At Hospitals	(a) Specimens of sputum, &c., examined	4645†
(a) "Light" treatment	3711	(b) X-ray examinations made in connection with Dispensary work	6191
(b) Other special forms of treatment	708	14. Number of Insured Persons on Dispensary Register on the 31st December	4432
		15. Number of Insured Persons under Domiciliary Treatment on the 31st December	1446
		16. Number of reports received during the year in respect of Insured Persons:—	
		(a) Form G.P. 17	43
		(b) Form G.P. 36	82

36 cases previously written off the register as cured have returned to treatment.

* In addition, 351 individual patients received dental attention whilst undergoing treatment at sanatoria or hospitals.

† In addition, 1,080 specimens were examined for medical practitioners in respect of persons who did not come on the dispensary register.

APPENDIX V.

RESIDENTIAL INSTITUTIONS.

(A) AVERAGE NUMBER OF BEDS AVAILABLE FOR PATIENTS DURING THE YEAR 1928.

(Table II. of Memorandum 37/T of Ministry of Health).

	Observation.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
		"Sanatorium" Beds.	"Hospital" Beds.	Disease of Bones and Joints.	Other Conditions.	
Adult Males	3	166	162	45	11	387
Adult Females	4	134	109	27	11	285
Children under 15	5	57	5	104	34	205
TOTAL	12	357	276	176	56	877

(B) RETURN SHOWING THE EXTENT OF RESIDENTIAL TREATMENT DURING THE YEAR 1928.

			In Institutions on Jan. 1.	Admitted during the year.	Discharged during the year.	Died in the Institutions.	In Institutions on Dec. 31.
Number of Patients ...	Adults	M.	379	888	738	160	369
		F.	237	654	501	104	286
	Children	M.	116	159	154	4	117
		F.	74	133	122	9	76
Number of Observation Cases	Adults	M.	3	28	28	—	3
		F.	4	24	26	—	2
	Children	M.	1	10	8	—	3
		F.	5	9	12	—	2
	Total...		819	1905	1589	277	858

APPENDIX VI.

Return showing the immediate results of treatment of patients and of observation of doubtful cases discharged from Residential Institutions during the year 1928.

(Table III. of Memorandum 37/T of Ministry of Health).

Classification on admission to the Institution.	Condition at time of discharge.	Duration of Residential Treatment in the Institution.													TOTAL
		Under 3 months.			3—6 months			6—12 months			More than 12 months				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.		
PULMONARY TUBERCULOSIS.	Class T.B. minus.	Quiescent	32	17	5	28	20	22	6	13	13	5	2	2	165
		Improved	31	18	1	31	13	11	8	4	16	4	1	6	144
		No material improvement...	15	13	2	6	2	—	3	3	2	1	—	2	49
		Died in Institution	14	8	1	2	2	—	1	1	—	1	1	1	32
	Class T.B. plus Group 1.	Quiescent	9	4	—	5	10	1	8	3	2	1	3	—	46
		Improved	16	4	—	15	4	—	19	6	—	—	1	—	65
		No material improvement...	4	4	—	2	3	—	5	3	—	1	1	—	23
		Died in Institution	—	1	—	1	—	—	1	—	—	—	1	—	4
	Class T.B. plus Group 2.	Quiescent	3	2	—	7	9	—	3	7	—	3	—	—	34
		Improved	51	22	—	76	43	—	46	24	—	14	12	—	288
		No material improvement...	53	29	—	28	21	—	15	8	—	5	1	1	161
		Died in Institution	44	30	—	8	13	1	4	6	—	4	3	—	113
	Class T.B. plus Group 3.	Quiescent	—	—	—	—	1	—	—	—	—	—	—	—	1
		Improved	10	4	—	12	9	—	6	5	—	3	2	—	51
		No material improvement	17	19	—	12	5	2	6	1	—	1	—	—	63
		Died in Institution	44	28	1	16	5	—	8	—	—	4	2	—	108
	Bones & Joints.	Quiescent or Arrested ...	2	4	3	—	2	6	5	3	7	2	3	22	59
		Improved	27	18	10	3	2	5	3	4	5	6	5	13	101
		No material improvement...	4	6	3	3	—	—	1	—	1	1	—	1	20
		Died in Institution...	3	1	1	—	—	—	—	2	3	1	—	—	11
Abdominal.	Quiescent or Arrested ...	—	—	4	—	—	2	—	1	1	—	—	2	10	
	Improved	6	7	12	—	1	2	—	1	3	—	—	2	34	
	No material improvement...	1	3	4	—	1	1	—	—	1	—	—	—	11	
	Died in Institution	—	—	3	—	—	—	1	—	—	—	—	—	4	
Other Organs.	Quiescent or Arrested ...	1	2	1	—	—	—	—	—	—	—	—	—	4	
	Improved	12	14	1	3	—	2	—	—	1	1	—	—	34	
	No material improvement...	4	4	1	—	—	1	—	—	—	—	—	—	10	
	Died in Institution...	—	—	1	—	—	—	—	—	—	—	—	—	1	
Peripheral Glands.	Quiescent or Arrested ...	2	10	17	—	—	1	—	1	2	—	1	1	35	
	Improved	20	30	40	1	1	—	—	1	2	1	—	4	100	
	No material improvement...	3	—	3	—	—	1	—	—	—	—	—	—	7	
	Died in Institution	3	—	1	—	—	—	—	—	—	—	—	—	4	
Observation for purpose of diagnosis.		Under. 1 week			1—2 weeks.			2—4 weeks.			More than 4 weeks.				
	Tuberculous	—	1	—	2	2	1	—	—	1	9	5	2	23	
	Non-tuberculous	—	—	—	1	—	1	2	2	3	10	14	8	41	
	Doubtful	—	1	—	—	—	1	1	—	—	3	1	3	10	

APPENDIX VII.

INSTITUTIONAL ACCOMMODATION.

The following table shows the number of beds occupied by County patients undergoing residential treatment for pulmonary and non-pulmonary tuberculosis on the 31st December, 1928 :—

Institution.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
<i>(a) Sanatoria.</i>					
Aitken, near Bury	51	1	—	—	52
Bowdon, Cheshire	1	—	—	—	1
East Lancashire, Cheshire	38	—	—	—	38
Elswick, near Kirkham	41	1	—	—	42
Halifax (Shelf)	12	—	—	—	12
High Carley, near Ulverston	86	1	—	—	87
King Edward VII., Sussex	5	—	—	—	5
King George V., Hants. (for sailors)	—	—	1	—	1
Liverpool, Kingswood	2	—	—	—	2
Maghull, near Liverpool	4	—	—	—	4
Meathop, Grange-over-Sands	36	—	—	—	36
New Hall, Southport	1	—	—	—	1
Rufford, near Ormskirk	1	—	—	—	1
Ventnor, Isle of Wight	1	—	—	—	1
Wilkinson, Bolton	11	—	—	—	11
Total	290	3	1	—	294
<i>(b) Children's Sanatoria.</i>					
Eastby, near Skipton	—	27	—	11	38
Oubas House, near Ulverston	—	18	—	2	20
Total	—	45	—	13	58
<i>(c) Training Colonies.</i>					
East Lancashire, Cheshire	2	—	—	—	2
Preston Hall, Kent	2	—	—	—	2
Total	4	—	—	—	4
<i>(d) Pulmonary Hospitals.</i>					
Chadderton, near Oldham	41	—	1	—	42
Eccleston Hall, St. Helens... ..	3	1	—	—	4
Heath Charnock, Chorley	31	—	—	—	31
Hefferston Grange, Cheshire	7	—	—	—	7
Marland, Rochdale	4	—	—	—	4
Peel Hall, Little Hulton	51	—	—	—	51
Pemberton, Wigan	4	—	—	—	4
Rufford, near Ormskirk	42	4	1	—	47
Westhulme, Oldham	4	—	—	—	4
Withnell, near Chorley	51	—	—	—	51
Wolstenholme Hall, Norden	28	—	—	—	28
Total	266	5	2	—	273
<i>(e) Observation Cases (Pulmonary).</i>					
Bury Infirmary	1	—	—	—	1
Eastby Sanatorium... ..	—	1	—	—	1
East Lancashire Sanatorium	1	—	—	—	1
High Carley Sanatorium	1	—	—	—	1
Oubas House Sanatorium	—	1	—	—	1
Peel Hall Pulmonary Hospital	1	—	—	—	1
West Kirby Children's Convalescent Home	—	1	—	—	1
Total	4	3	—	—	7

APPENDIX VII. INSTITUTIONAL ACCOMMODATION (contd.).

Institution.	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
(f) General Hospitals.					
Ashton-under-Lyne Infirmary	—	—	1	1	2
Blackburn Royal Infirmary	—	—	1	1	2
Bury Infirmary	—	—	1	1	2
Liverpool David Lewis Northern Hospital	—	—	2	—	2
Liverpool Royal Infirmary	—	—	—	2	2
Manchester Royal Infirmary	1	—	5	—	6
North Lonsdale Hospital, Barrow ...	—	—	1	—	1
Preston Royal Infirmary	—	—	9	3	12
Warrington Infirmary	—	—	1	—	1
Wigan Infirmary	—	—	—	1	1
Total	1	—	21	9	31
(g) Special Hospitals.					
Elswick, near Kirkham	1	—	15	4	20
Fazakerley, Liverpool	—	—	1	—	1
Rufford, near Ormskirk	—	—	3	1	4
Shropshire Orthopædic, Oswestry ...	—	—	50	3	53
Total	1	—	69	8	78
(h) Children's Non-Pulmonary Hospitals.					
Alton, Hants. (Lord Mayor Treloar Cripples' Hospital)	—	—	—	20	20
Coleshill (Warwickshire Orthopædic Hospital for Children)	—	—	—	12	12
Heatherwood, Berks. (United Services Fund)	—	—	—	20	20
Leasowe (Liverpool Open-air Hospital for Children)	—	—	—	30	30
Pendlebury (Royal Manchester Children's Hospital)	—	—	—	1	1
Royal Liverpool Children's Hospital :—					
Myrtle Street, Liverpool	—	—	—	1	1
Heswall, Cheshire	—	—	—	9	9
Sheffield (King Edward VII. Hospital for Crippled Children)	—	—	—	11	11
West Kirby (Children's Convalescent Home)	—	—	—	6	6
Total	—	—	—	110	110
(i) Observation Cases (Non-Pulmonary).					
Elswick Sanatorium, near Kirkham ...	—	—	1	—	1
Sheffield (King Edward VII. Hospital for Crippled Children)	—	—	—	1	1
West Kirby (Children's Convalescent Home)	—	—	—	1	1
Total	—	—	1	2	3
GRAND TOTAL	566	56	94	142	858
	622		236		

ADMINISTRATIVE COUNTY OF LANCASTER.

MAP SHOWING TUBERCULOSIS DISPENSARY AREAS.

OCTOBER, 1929.

CUMBERLAND

WESTMORLAND

FURNESS
Sub-Area

WESTMORLAND

MORECAMBE
BAY

YORKS
(West Riding)

IRISH
SEA

FYLDE
Sub-Area

R RIBBLE

YORKS
(West Riding)

CHESHIRE

Dispensary Area and Population.	Tuberculosis Medical Staff.	Dispensary Address and Telephone Number.	Special Equipment.
Area 1 260,601	Dr. A. D. BROWN (Consultant), 8, Middle Street, Lancaster. Dr. G. H. Leigh (Assistant).	LANCASTER (Chief Dispensary), 8, Middle Street (Tel. 068). CHORLEY, 59, Gullbrand Street (Tel. 263). PRESTON, 22, Bolton Street (Tel. 1111).	X-ray apparatus. Artificial light installation. Artificial light installation. Artificial light installation.
Area 2 354,883	Dr. B. MACHIE (Consultant), 39, Avenue Parade, Accrington. Dr. S. C. Adam and Dr. F. C. S. Bradbury (Assistants).	ACCRINGTON (Chief Dispensary), 39, Avenue Parade (Tel. 2443). DARWEN, 20, Railway Road (Tel. 408). NELSON, 64, Carr Road (Tel. 807). STACKSTRADS, Knott Hill House, (Tel. 204 Bacup).	Bacteriological laboratory. X-ray apparatus. Artificial light installation. Artificial light installation.
Area 3 373,162	Dr. G. FLEIGER (Consultant), Boston House, Warrington Street, Ashton-under-Lyne. Dr. C. Berry and Dr. J. Cathcart (Assistants).	ASHTON-UNDER-LYNE (Chief Dispensary), Boston House, Warrington Street (Tel. 776). MIDDLETON, 71, Manchester Old Road. MOSSLEY, Park Lodge. OLDHAM, 20, Barker Street (Tel. 1871). RADCLIFFE, 41, Darbyshire Street (Tel. 223). ROCHDALE, 168, Drake Street (Tel. 3892).	X-ray apparatus. Artificial light installation. Bacteriological laboratory. — — Artificial light installation. — —
Area 4 343,710	Dr. G. JESSEL (Consultant), 13, Church Street, Leigh. Dr. A. B. Jamieson and Dr. H. J. Vickers (Assistants).	LEIGH (Chief Dispensary), 13, Church Street (Tel. 208). ECCLES, 28-30, Gilda Brook Road (Tel. 433). FARNWORTH, 19-23, Darley Street (Tel. 63). PENDLEBURY, 131, Station Road, (Tel. 1895 Swinton). STRETFORD, 14, Darbyshire Lane, (Tel. 110 Trafford Park).	X-ray apparatus. Artificial light installation. Bacteriological laboratory. — — —
Area 5 378,248	Dr. C. W. LAIRD (Consultant), 7, Claremont Road, Seaford. Dr. C. H. Lilley and Dr. G. Barker Charnock (Assistants).	SEAFORTH (Chief Dispensary), 7, Claremont Road (Tel. 688 Waterloo). ST. HELENS, 80, Hardshaw Street (Tel. 918). WIDNES, Brendan House, Widnes Road (Tel. 158). WIGAN, 3, Menes Park Terrace (Tel. 1172).	X-ray apparatus. Bacteriological laboratory. Artificial light installation. — Artificial light installation.
FURNESS Sub-Area. 38,433.	Dr. E. H. A. PASK (Consultant), High Carley Sanatorium, Ulverston.	ULVERSTON, Virginia House (Tel. 145).	Artificial light installation (X-ray apparatus and bacteriological laboratory at High Carley Sanatorium).
FYLDE Sub-Area. 61,969.	Dr. G. LEGGAT (Consultant), Elswick Sanatorium, near Kirkham.	FLEETWOOD, 23, Poulton Road (Tel. 262).	Artificial light installation (X-ray apparatus and bacteriological laboratory at Elswick Sanatorium).

COUNTY TUBERCULOSIS DISPENSARIES

Scale: 4 Miles to 1 Inch.

(Revised to 26/10/28)

ADMIN. COUNTY OF LANCASTER.
(Excludes County Boroughs, all shaded Black)

Population—1,811,000.
Acroage—1,050,680.

WESTMOR

CUMBERLAND

FURNESS
Sub-Area

MORE